

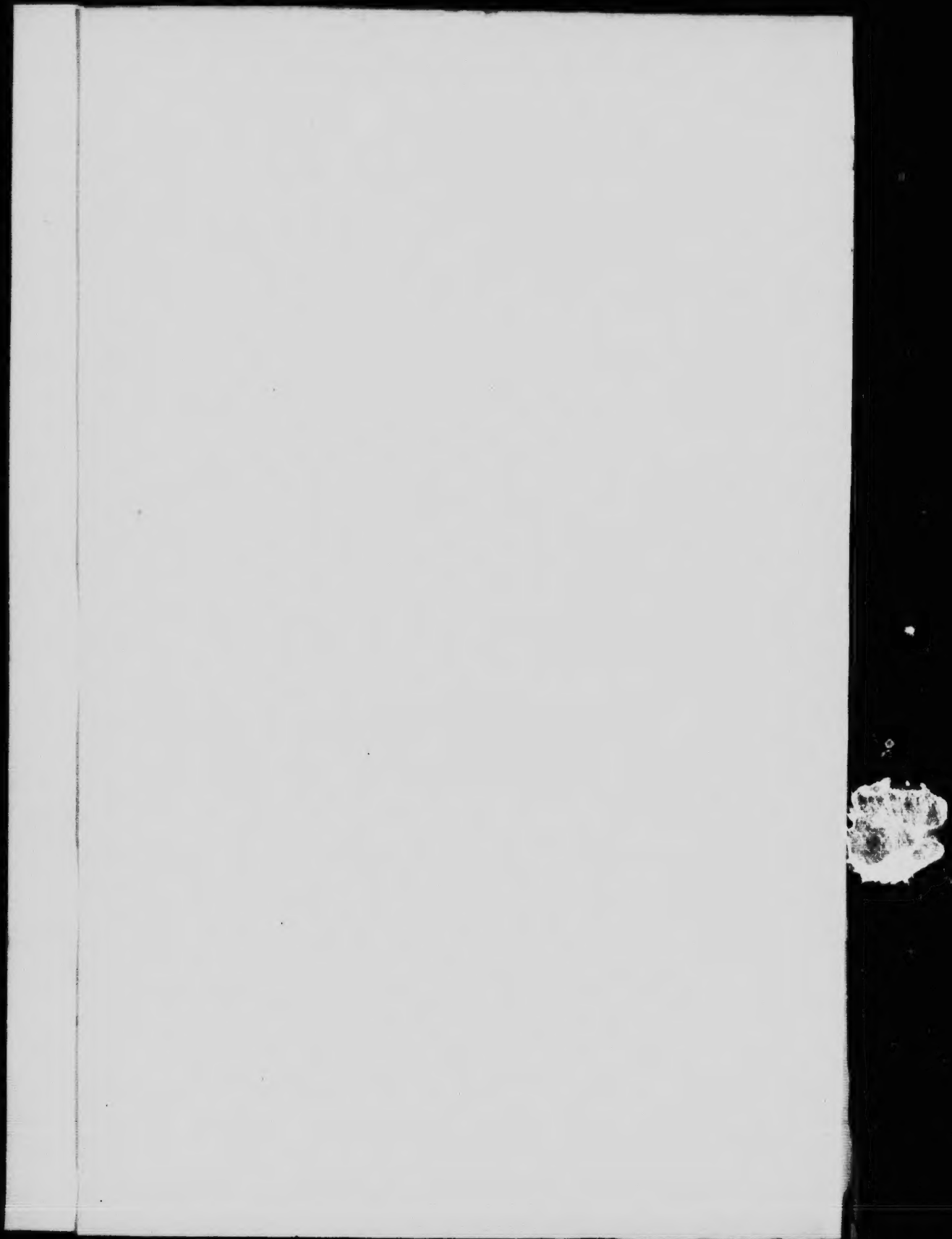
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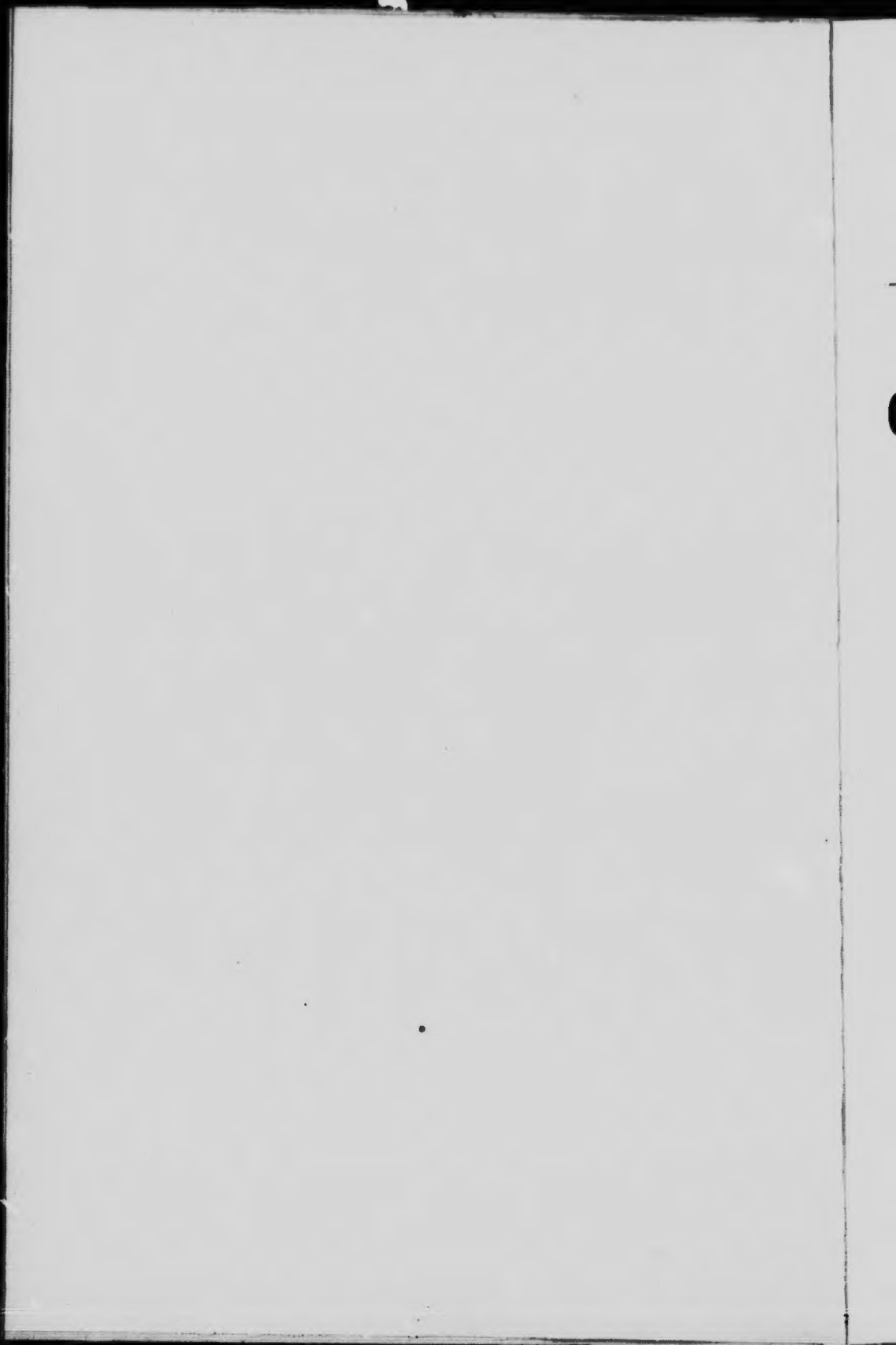
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**SUPPLEMENT
TO
WEEKLY BULLETIN
OF THE
DEPARTMENT OF TRADE AND COMMERCE**

CANADA AND THE BRITISH WEST INDIES

**REPORT ON THE
POSSIBILITIES OF TRADE UNDER THE PREFERENTIAL
TARIFF AGREEMENT**

**BY
WATSON GRIFFIN**
Special Trade Commissioner

**Issued by authority of Sir George E. Foster, K.C.M.G., M.P.,
Minister of Trade and Commerce.**

**OTTAWA
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DEPARTMENT OF TRADE AND COMMERCE,

OTTAWA, December 30, 1914.

RICHARD GREGG, Esq.,

Commissioner of Commerce,
Ottawa.

SIR,—In accordance with your instructions I visited all the colonies that have joined in the Canada-West Indies Preferential Tariff Agreement, the colony of Jamaica, which has not given Canada a preference, and the Republic of Cuba. I have the honour to submit my report on the British West Indies.

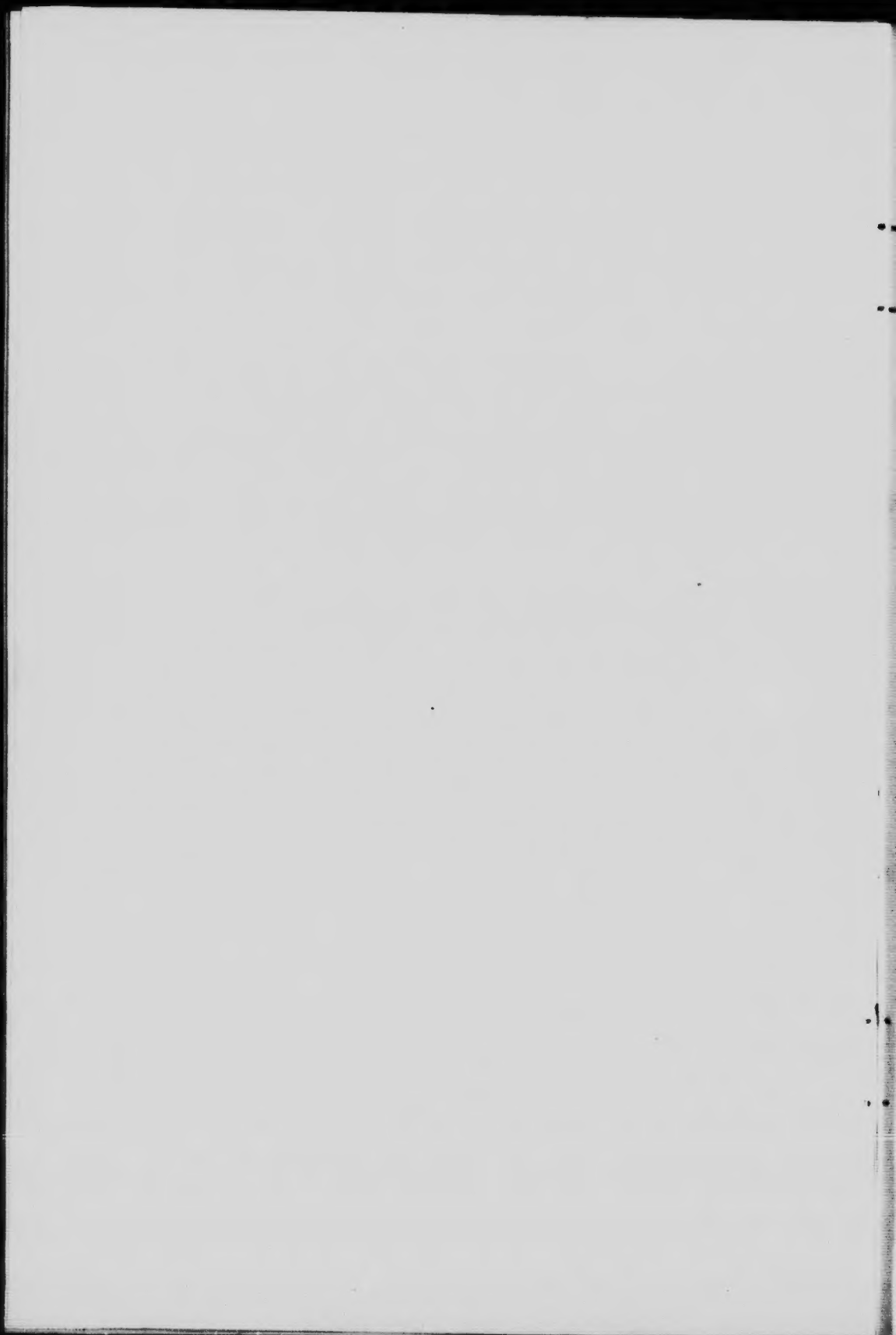
In each colony I interviewed the Governor, the Colonial Secretary, the Treasurer or Controller of Customs, and other officials in charge of important departments of the government service, the Superintendent or Director of the Agricultural Department, the leading merchants, the steamship men, and a number of planters and managers of estates. They were all very kind and courteous, readily giving me the information asked for and expressing appreciation of Canada's good will toward the British West Indies.

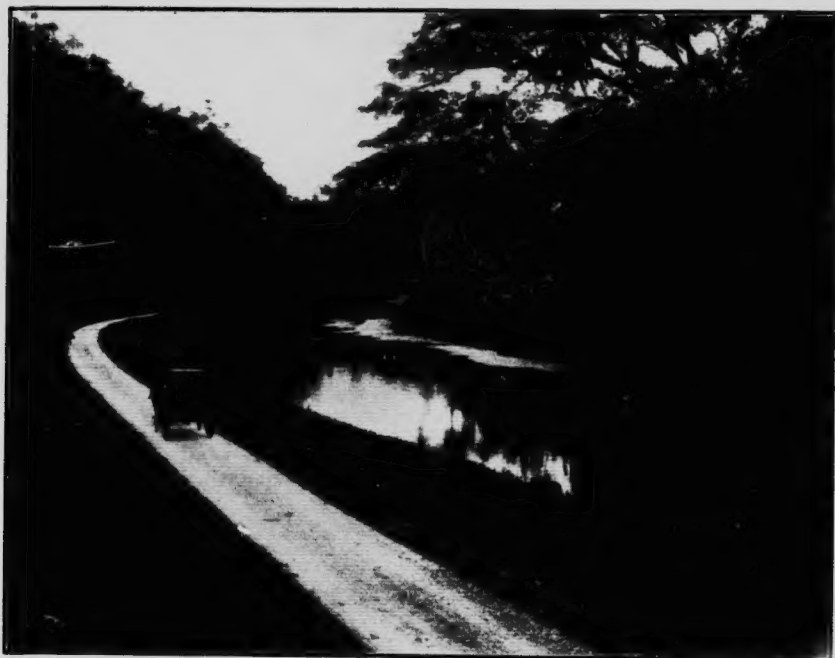
In Barbados I met Hon. Francis Watts, Commissioner of the Imperial Department of Agriculture, from whom I obtained a great deal of valuable information supplementing what had been learned from interviews with the superintendents of the Agricultural Departments of the different colonies and with planters and managers of estates.

I have the honour to be, sir,

Your obedient servant,

WATSON GRIFFIN.

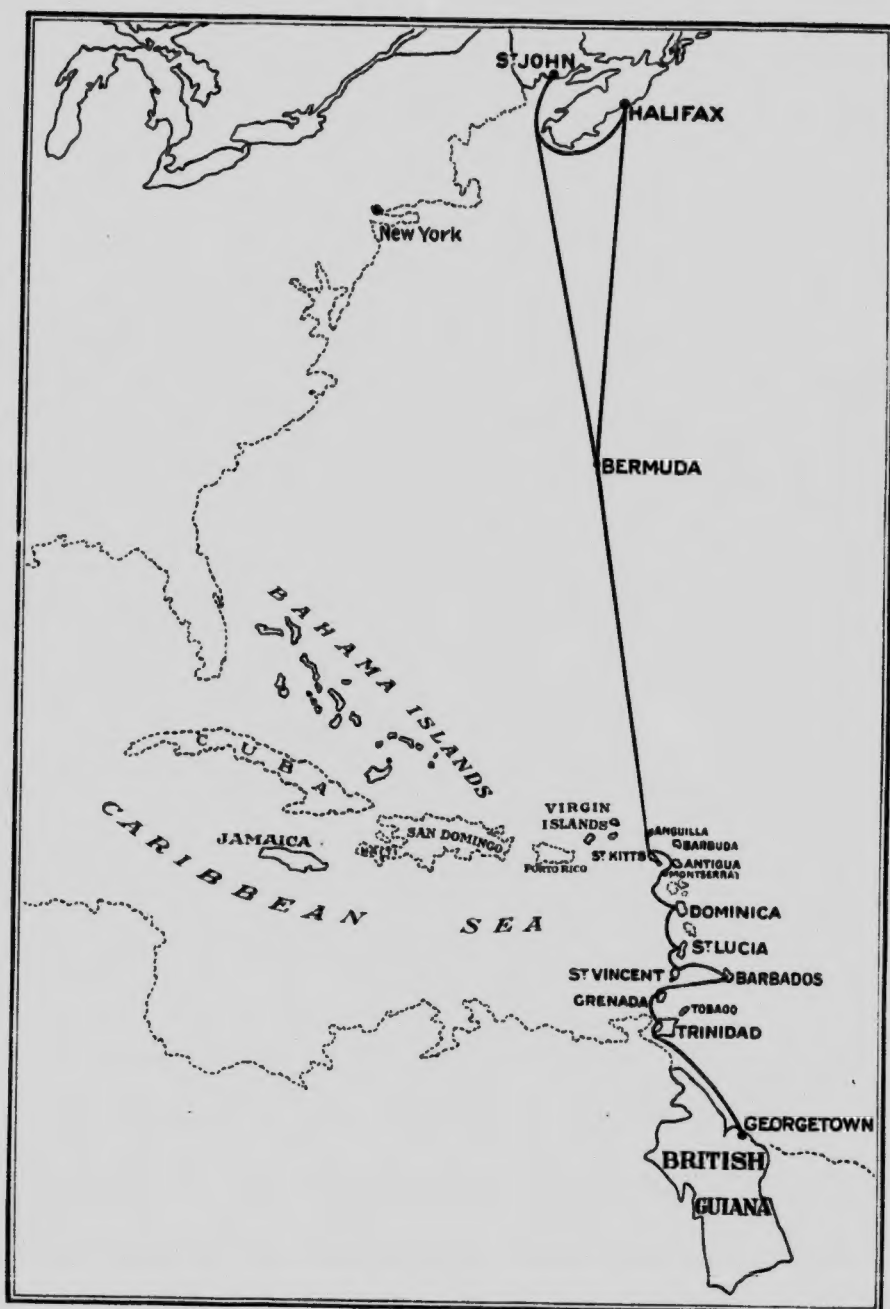




The Bog Walk Drive, Jamaica.



Barbados when the moon shines on the sea.



ROUTE OF THE ROYAL MAIL STEAMERS FROM CANADA TO THE WEST INDIES.

Chapter I.

A MARKET EASY OF ACCESS.

As a result of the contract made between the Canadian Government and the Royal Mail Steam Packet Company, exporters of Canadian food products and manufactured goods now have easy access to all the colonies that have joined in the Canada-West Indies Preferential Trade Agreement. For St. John and Halifax the arrangements are especially advantageous, as they have no rail haul to pay for in shipping to the West Indies. Even Montreal and Toronto can ship goods to the British West Indian colonies, including rail freight to St. John and Halifax and steamship charges from those ports at less cost than to Alberta and Saskatchewan.

As regards time of transportation the distances from Halifax to some of the leading distributing centres of the West may be compared with the distances to the ports of call of the Royal Mail Steam Packet boats.

The railway mileages to western points via the Intercolonial railway to Montreal and Canadian Pacific railway westward are as follows:—

	Miles.
Halifax to Montreal.....	836.3
" Fort William.....	1,828.7
" Winnipeg.....	2,247.9
" Brandon.....	2,380.9
" Regina.....	2,605.2
" Moosejaw.....	2,646.8
" Saskatoon.....	2,727.7
" Swift Current.....	2,757.3
" Medicine Hat.....	2,904.7
" Calgary.....	3,085.0
" Edmonton.....	3,096.1

DISTANCES TO WEST INDIAN COLONIES.

The distances from Halifax to the ports of call of the Royal Mail steamers are as follows, in nautical miles:—

	Nautical Miles.
Halifax to Bermuda.....	760
" St. Kitts.....	1,685
" Antigua.....	1,745
" Montserrat.....	1,782
" Dominica.....	1,880
" St. Lucia.....	1,963
" St. Vincent.....	2,022
" Barbados.....	2,127
" Grenada.....	2,294
" Trinidad.....	2,388
" British Guiana.....	2,755

The nautical mile is 6,080 feet, as compared with the railway mile of 5,280 feet, and this difference must be taken into consideration in the comparison.

A freight train going west from Halifax would sometimes go faster than the steamer and sometimes slower. It would probably be side-tracked again and again to make way for first-class passenger trains and in the winter season its progress would sometimes be blocked by snow. The steamer on the other hand would keep steadily on its course and arrive at the various ports of call very closely on schedule time, so that the goods shipped from Halifax to the West Indies would probably reach their destination before those shipped to Western Canada.

As regards cost of transportation, it is well known that water transportation is very much cheaper than rail transportation.

CANADA AND THE BRITISH WEST INDIES

The railway freight tariffs are classified on the basis of weight, while the steamship tariff is sometimes based on measurement and sometimes on weight. Space will not allow a complete statement of rates, but we may select for comparison a few articles on which the steamship charges by weight. In this comparison the war rate must be added to the steamship rate to Trinidad during the progress of the war. The steamship rate from St. John is the same as from Halifax.

HALIFAX TO

RATE BY WEIGHT						TRINIDAD.	
Articles.		Winnipeg.	Regina.	Swift Current.	Calgary.	Regular Rate.	War Rate.
Bacon and Hams.	100 lb.	.80	1.07	1.18	1.37	.27 $\frac{3}{4}$	0.00 $\frac{1}{2}$
Cement.	100 "	.55	.69	.74	.85	.16 $\frac{1}{2}$	0.05 $\frac{1}{2}$
Cheese.	100 "	.97	1.28	1.39	1.61	.38 $\frac{1}{2}$	0.13 $\frac{1}{2}$
Heavy Hardware.	100 "	.80	1.07	1.18	1.37	.28	0.11 $\frac{1}{2}$
Iron Bedsteads.	100 "	.97	1.28	1.39	1.61	.33	0.11 $\frac{1}{2}$
Leather.	100 "	.97	1.28	1.39	1.61	.44	0.15 $\frac{1}{2}$
Paint.	100 "	.80	1.07	1.18	1.37	.22	0.07 $\frac{1}{2}$
Roofing.	100 "	.80	1.07	1.18	1.37	.27 $\frac{3}{4}$	0.09 $\frac{1}{2}$
Rope.	100 "	.80	1.07	1.18	1.37	.22	0.15 $\frac{1}{2}$
Refined Sugar.	100 "	.80	1.07	1.18	1.37	.22	0.07 $\frac{1}{2}$
Wall Paper.	100 "	.80	1.07	1.18	1.37	.33	0.11 $\frac{1}{2}$

In the following instances the steamship charges by measurement and the railway by weight. Thus a case of cotton prints weighing 328 pounds and measuring 23 $\frac{1}{2}$ cubic feet is charged for by the steamship at the rate of 12 cents per cubic foot plus 10 per cent primage with the war tax added, while a lower freight rate is charged on a case of white cotton weighing 437 pounds because it measures only 11 $\frac{1}{2}$ cubic feet.

HALIFAX TO

STEAMSHIP RATE BY MEASURE. RAILWAY RATE BY WEIGHT.						TRINIDAD.	
Articles.		Winnipeg.	Regina.	Swift Current.	Calgary.	Regular Rate.	War Rate.
Apples	brl 165 lb.	1.32	1.79 $\frac{1}{2}$	1.94 $\frac{1}{2}$	2.26	.66	0.23 $\frac{1}{2}$
Cotton—Prints	case 328 "	3.18	4.19 $\frac{1}{2}$	4.56	5.23	3.04 $\frac{1}{2}$	1.06 $\frac{1}{2}$
Cotton—White	" 437 "	4.23 $\frac{1}{2}$	5.69 $\frac{1}{2}$	6.07 $\frac{1}{2}$	7.03 $\frac{1}{2}$	1.55 $\frac{1}{2}$	0.54 $\frac{1}{2}$
Fish.	cask 480 "	4.65 $\frac{1}{2}$	6.14 $\frac{1}{2}$	6.67 $\frac{1}{2}$	7.72 $\frac{1}{2}$	1.92	0.67 $\frac{1}{2}$
Fish (wet).	brl. 300 "	2.40	3.21	3.54	4.11	.86	0.29 $\frac{1}{2}$
Fish (dry).	" 200 "	1.60	2.14	2.36	2.74	.95	0.33 $\frac{1}{2}$
Flour.	" 196 "	1.17 $\frac{1}{2}$	1.43	1.52 $\frac{1}{2}$	1.70 $\frac{1}{2}$	.40	0.14
Potatoes.	" 180 "	1.08	1.31 $\frac{1}{2}$	1.40 $\frac{1}{2}$	1.56 $\frac{1}{2}$	.66	0.23 $\frac{1}{2}$

The Maritime Provinces have a geographical advantage over the provinces of Ontario and Quebec in trading with the West Indies both as regards time and cost of transportation just as the central provinces have the advantage in trading with Western Canada. However, it will be seen from the following examples that even from Ontario and Quebec the cost of transportation to the West Indies is less than the cost to Saskatchewan and Alberta.

MONTREAL TO

Articles.		STEAMSHIP RATE BY MEASURE. RAILWAY RATE BY WEIGHT.				TRINIDAD.	
		Winnipeg.	Regina.	Swift Current.	Calgary.	Regular Rate.	War Rate.
Apples.....	bbl. 165 lb.	.94	1.43½	1.55	1.78½	1.00½	0.23½
Cotton-Prints.....	case 328 "	2.72½	3.74	4.10	4.82½	3.70½	1.06½
Cotton-White.....	" 437 "	3.62½	4.98½	5.46½	6.42½	3.42½	0.54½
Fish.....	cask 480 "	3.98½	5.47½	6.00	6.95½	3.50½	0.67½
Fish (wet).....	bbl. 300 "	2.07	2.88	3.21	3.78	1.48	0.29½
Fish (dry).....	" 200 "	1.38	1.92	2.14	2.52	1.37	0.33½
Flour.....	" 196 "	.96	1.21½	1.31½	1.50	.66½	0.14
Potatoes.....	" 180 "	.88½	1.11½	1.20½	1.36½	1.03½	0.23½

TORONTO TO

Articles.		STEAMSHIP RATE BY MEASURE. RAILWAY RATE BY WEIGHT.				TRINIDAD.	
		Winnipeg.	Regina.	Swift Current.	Calgary.	Regular Rate.	War Rate.
Apples.....	bbl. 165 lb.	.87½	1.37	1.48½	1.71½	1.02½	0.23½
Cotton-Prints.....	case 328 "	2.72½	3.74	4.10	4.82½	3.73½	1.06½
Cotton-White.....	" 437 "	3.62½	4.98½	5.46½	6.42½	3.42½	0.54½
Fish.....	cask 480 "	3.98½	5.47½	6.00	6.95½	3.64½	0.67½
Fish (wet).....	bbl. 300 "	2.07	2.88	3.21	3.78	1.51	0.29½
Fish (dry).....	" 200 "	1.38	1.92	2.14	2.52	1.39	0.33½
Flour.....	" 196 "	.96	1.21½	1.31½	1.50	.66½	0.14
Potatoes.....	" 180 "	.88½	1.11½	1.20½	1.36½	1.05½	0.23½

MONTREAL TO

Articles.		RATE BY WEIGHT.				TRINIDAD.	
		Winnipeg.	Regina.	Swift Current.	Calgary.	Regular Rate.	War Rate.
Bacon and hams.....	100 lb.	.69	.96	1.07	1.26	.43½	0.09½
Cement.....	100 "	.44	.58	.63	.74	.37½	0.05½
Cheese.....	100 "	.83	1.14	1.25	1.47	.70½	0.13½
Heavy hardware.....	100 "	.69	.96	1.07	1.26	.57	0.11½
Iron bedsteads.....	100 "	.83	1.14	1.25	1.47	.60	0.11½
Leather.....	100 "	.83	1.14	1.25	1.47	.68	
Paint.....	100 "	.69	.96	1.07	1.26	.43	
Roofing.....	100 "	.60	.96	1.07	1.26	.48½	
Rope.....	100 "	.69	.96	1.07	1.26	.68	
Refined sugar.....	100 "	.69	.96	1.07	1.26	.43	0.07½
Wall Paper.....	100 "	.69	.96	1.07	1.26	.54	0.11½
Woven spring mattresses.....	100 "	.69	.96	1.07	1.26	.60	

CANADA AND THE BRITISH WEST INDIES

TORONTO TO

RATE BY WEIGHT. ARTICLES.		Winnipeg.	Regina.	Swift Current.	Calgary.	TRINIDAD.	
						Regular Rate.	War Rate.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Bacon and hams.....	100 lb.	0 69	0 96	1 07	1 26	0 49	0 09
Cement.....	100 "	0 44	0 58	0 63	0 74	0 38	0 07
Cheese.....	100 "	0 83	1 14	1 25	1 47	0 74	0 13
Heavy hardware.....	100 "	0 69	0 96	1 07	1 26	0 58	0 11
Iron bedsteads.....	100 "	0 83	1 14	1 25	1 47	0 62	0 11
Leather.....	100 "	0 83	1 14	1 25	1 47	0 69	0 13
Paint.....	100 "	0 69	0 96	1 07	1 26	0 44	0 07
Roofing.....	100 "	0 69	0 96	1 07	1 26	0 49	0 09
Rope.....	100 "	0 69	0 96	1 07	1 26	0 60	0 15
Refined sugar.....	100 "	0 69	0 96	1 07	1 26	0 44	0 07
Wall paper.....	100 "	0 69	0 96	1 07	1 26	0 55	0 11
Woven spring mattresses.....	100 "	0 69	0 96	1 07	1 26	0 63	

These illustrations may be regarded as approximately representing the difference in cost of shipping all classes of articles to Western Canada and to the British West Indies. Even in war time when the war rate has to be added to the ordinary steamship rate it costs less to ship from Toronto and Montreal to Trinidad than to points west of Winnipeg. For the merchants and manufacturers of St. John and Halifax and the farmers of the Maritime Provinces the ordinary cost of shipping to the West Indian colonies in which the Canadian Government has arranged for a tariff preference is less than half the cost of shipping to Winnipeg and little more than one-fourth the cost of shipping to Calgary.

If we consider the West Indies as a market for flour, meat, butter and condensed milk produced in the western provinces of Canada it is worthy of note that all the British West India Islands are nearer to Manitoba, Saskatchewan and Alberta than the British Isles or any country of continental Europe. Moreover the West Indies are more absolutely dependent upon outside sources for their supplies of such food as the provinces of Western Canada produce than the countries of the northern zone, in all of which a considerable proportion of the home demand is supplied by their own farmers. It is impossible to grow wheat in the West Indies and the climate is not favourable to the production of milk, butter or meat. On the other hand the West Indies produce a variety of tropical foods which Canada cannot produce and must import. We can exchange our food products for their food products more profitably than we can in trading with any country of the northern zone.

THE TRADE WORTH GOING AFTER.

Is the trade of the British West Indies worth going after?

Will it pay Canadian manufacturers and merchants to undertake a systematic campaign for business in those colonies? Many merchants and manufacturers of both the United Kingdom and the United States found it worth while to devote attention to West Indian trade even during a period when the British West Indies were far less prosperous than they are now.

In preparing trade statistics for publication all the colonies which have joined in the Preferential Agreement with Canada have adopted the calendar year for their tables instead of the fiscal year as is the custom in Canada. The figures for 1912 are really more representative of ordinary conditions in the British West Indies than those of 1913, because the severe drought of 1911 and 1912 affected trade in 1913 to a greater extent than it did in 1912. Moreover the year 1912 was the last complete year before the preference went into effect, and as the preference began in June, 1913, only part of that year was under the preference, so it is not a suitable year for comparisons. The figures for 1914, the first complete year under the preference, will not be available for some months.

In the year 1912 the total imports of merchandise of the colonies that are now giving Canada a preference amounted to \$44,237,839, while the imports for home consumption in these colonies amounted to \$30,365,063, as shown in the following table:—

TRADE of 1912 in Preference Colonies.

Colony.	Total Imports.	Total Exports.	Imports of Merchandise for Home Consumption.	Exports of Domestic Products.
	\$	\$	\$	\$
British Guiana.....	8,176,106	8,683,264	7,179,275	7,569,543
Trinidad and Tobago.....	22,475,160	21,408,370	11,436,710	9,429,274
Barbados.....	7,034,060	5,210,731	6,276,907	3,674,534
St. Lucia.....	1,513,734	1,381,030	677,629	520,869
St. Vincent.....	619,833	536,086	604,260	497,414
Grenada.....	1,343,396	1,370,833	1,308,166	1,321,945
Antigua.....	333,381	807,384	817,699	792,063
St. Kitts-Nevis.....	1,232,294	928,166	1,131,110	836,045
Dominica.....	765,739	731,799	709,162	683,396
Montserrat.....	194,525	201,654	174,605	189,619
Virgin Islands.....	49,550	34,838	49,550	34,838
Total.....	44,237,839	41,304,363	30,365,063	26,620,629

THE COLONIES THAT HAVE NOT JOINED.

The colonies that have not joined in the Preferential Agreement are Jamaica with its dependencies, the Turk, Caicos and Cayman islands, the Bahamas, and British Honduras. The total imports of these colonies in 1912 were valued at \$19,858,144, as compared with \$44,237,839 for the colonies which give Canada a preference. The Bahamas and British Honduras adopt the fiscal year ending March 31 for their trade tables instead of the calendar year. The British Honduras imports for home consumption and domestic exports cannot be ascertained from the reports available.

The trade of non-preference colonies for 1912 is shown in the following tables:—

TRADE of Non-preference Colonies in 1912.

Colony.	Total Imports.	Total Exports.	Imports of Merchandise for Home Consumption.	Exports of Domestic Products.
	\$	\$	\$	\$
Jamaica, Turks, Caicos and Cayman Islands..	14,642,303	13,004,502	14,314,293	12,346,920
Bahamas.....	1,718,933	1,325,352	1,698,826	1,307,304
British Honduras.....	3,496,908	2,856,143		
Total.....	19,858,144	17,186,057		

CANADA AND THE BRITISH WEST INDIES

The figures at present available for the calendar year 1913 in the colonies that are giving Canada a preference are as follows:—

TRADE of 1913 in Preference Colonies.

Colony.	Total Imports.	Total Exports.	Imports of Merchandise for Home Consumption.	Exports of Domestic Products.
British Guiana.....	8,131,942	10,526,976	7,400,988	9,565,844
Trinidad and Tobago.....	23,848,128	24,967,230	13,318,272	11,252,967
Barbados.....	6,496,645	4,116,525	4,909,258	2,535,439
St. Lucia.....	1,384,346	1,317,407	673,567	565,203
St. Vincent.....	689,853	582,900	556,877	520,080
Grenada.....	1,358,060	1,762,317		
Antigua.....	804,369	663,451	765,088	644,765
St. Kitts-Nevis.....	960,172	977,404	838,900	817,377
Dominica.....	842,832	915,364	842,832	833,913
Montserrat.....	176,457	179,563	166,704	170,414
Virgin Islands.....	40,305	35,044		

The figures for 1913 available for the colony of Jamaica and the Bahamas are as follows:—

Colony.	Total Imports.	Total Exports.	Imports of Merchandise for Home Consumption.	Exports of Domestic Products.
Jamaica, Turks, Caicos and Cayman Islands.....	13,619,741	11,664,094	13,458,547	10,657,613
Bahamas.....	1,936,970	1,266,979		

A DISTRIBUTING CENTRE.

It will be noted that there is a remarkable difference between the total imports of Trinidad and the imports of merchandise for home consumption, the latter being little more than half of the total imports in 1912. An explanation may be found in a statement made by Mr. E. H. McCarthy, formerly Trinidad's Collector of Customs, as follows:—

"Trinidad is at the mouth of the great River Orinoco, which, with its numerous tributaries, several of them great rivers in themselves, taps a very large part of South America, from the Brazilian frontier to near the Caribbean sea, and from the Atlantic to within a hundred miles of the Pacific. Within that area there are many different elevations and practically different climates; so that the range of products is extremely wide—from cotton, rice and sugar cane in the lowlands to cacao, coffee and some of the grains of the temperate zone as the elevation increases. Many of the natural products are valuable, such as rubber, tonca beans and several varieties of medicinal plants. Cattle breeding is a large business, but it might be greatly extended, excellent pasturage covering many millions of acres where food is plentiful throughout the year. The Orinoco is, practically speaking, closed to ocean going vessels by its lack of depth; and the low-draught steamers which ply on it find a suitable place for transshipment at Port-of-Spain. Two stern-wheel steamers ply between Port-of-Spain and Ciudad Bolivar,

which is three hundred miles up the River Orinoco, and the chief centre of trade in the region. Five or six others go higher up, distributing and collecting on the main stream and some of the principal tributaries, in some cases to a thousand miles above Bolivar. Still higher up, beyond the Meipure and Ature rapids, a small steamer connects this fleet with San Carlos on the frontier of Brazil, where the Orinoco joins the Rio Negro and by it the Amazon. Roughly speaking these steamers work above Bolivar only in the wet season, and while the river is low goods are allowed to accumulate at various up-river stations. Throughout the year, however, trade is carried on by innumerable smaller craft propelled by sails or paddles, some of which occupy months on the journey to Bolivar. For the whole of the east coast of Venezuela, Trinidad is inevitably the market where European and American goods are bought, and cacao, coffee, cattle, maize and vegetables are sold."

Considerable quantities of goods are also transhipped at Trinidad for other islands of the British West Indies and for British Guiana and South America.

British Guiana tranships and re-exports supplies to Dutch Guiana and French Guiana, while Barbados re-exports considerable quantities of goods to the Windward and Leeward Islands.

British Honduras adjoins Mexico and Guatemala and a considerable part of its total trade represents transshipments for those countries.

The fact that Trinidad, British Guiana and British Honduras occupy geographical positions of such strategic importance commercially that they are distributing centres for adjoining foreign countries is of importance to Canada because by having first-class steamship communication with these colonies we may secure a considerable share of the trade of those foreign countries.

But in considering whether it is worth while for our manufacturers and merchants to try to take advantage of the preferential trade agreement recently made by the Canadian Government we may take into consideration only the fact that the imports of merchandise for home consumption in the colonies which now give Canada a preference, amounted to over thirty million dollars in one year, while the exports of their domestic products were valued at considerably more than twenty-five million dollars.

IMPORTS PER HEAD OF POPULATION.

It is interesting to note that the people of the colonies that joined in the Canada-West Indies preferential agreement spent on imported articles for home consumption the year following the last census, about \$27.95 per head of population, while Jamaica and the Bahamas, which have not joined in the preferential agreement, spent about \$17.82 per head of population.

THE PREFERENTIAL CHAIN.

It is very fortunate that the preferential agreement is for ten years as this is a long enough period to test its merits. As the preferential arrangement did not go into effect until June, 1913, only a little over half the trade of the calendar year 1913 was under its influence and it was a bad year for a start because it followed a drought that affected both imports and exports of the West Indies. Nevertheless Canada made a very good beginning in increasing its sales to the British West Indies, especially exports of flour, which is given a very substantial preference. The trade of the calendar year 1914 has been seriously affected by the war and there is no doubt that the trade of the year 1915 will also be affected. I know of one case at least where a large Canadian flour mill refused good West Indian orders for flour after the war broke out and a traveller who was having great success in getting business was called home.

On the whole the British West Indies will suffer no great loss during the war and if it is brought to conclusion before the end of the year 1916 the following year is likely to be a banner one for those colonies.

It should be noted that in addition to the colonies whose representatives originally signed the preferential agreement Grenada afterwards accepted its terms, so there is no break in the preferential chain extending from British Guiana to the Virgin Islands. If Bermuda would come in there would be a continuous preferential chain from Canada to the borders of the equator.

YET TO BE DEVELOPED.

The value of the trade of the British West Indies to Canada cannot be calculated by simply counting the imports of last year or the year before. The natural resources and wealth producing capacity of these colonies have yet to be developed. They are capable of supporting many times their present population and the trade of the future will be vastly greater than that of to-day. But if Canadians wait until these colonies have been fully developed and their trade established in other channels it will be very difficult to divert it to Canada. Now is the time for action.

Sir Daniel Morris, formerly Commissioner of the Imperial Department of Agriculture, who is recognized to be an authority on tropical agriculture, has estimated that after making full allowance for swamps, rocky and other useless lands and for forest reservations, there are at least twenty million acres of fertile land in the British West Indies not yet beneficially occupied, whereas the area under cultivation is only about a million and a half acres. Moreover the land that is under cultivation is in many cases not fully cultivated and its production could be greatly increased.

While the development of trade with the British West Indies will be advantageous to the people as a whole because it will put money into general circulation and add to the wealth of the Dominion the greater part of the work of establishing trade connections must be done by individuals. The Government, representing the whole people of Canada, has done its share in securing a preference for Canadian products and providing a good steamship service. Individual merchants and manufacturers must do the rest. However, the individual will only act when he sees good prospects of profits to reward him for his enterprise. From a national point of view it is important to know the total present trade of those colonies and the probability that it will vastly increase in the future because it shows the value of preference and justifies a large Government expenditure to secure first class steamship communication, but the manufacturer or merchant needs more detailed information before deciding whether there is any demand in those colonies for the products which he manufactures or distributes and whether it will pay him to endeavour to secure a share of the trade. In arriving at a decision it is necessary to know something about the character of the people, the climate and products of the different colonies and the class of goods which they import from other countries. It is the purpose of this report to give such information in a general way.

Chapter II.

SUGGESTIONS FOR CANADIAN EXPORTERS.

Before considering general conditions in the British West Indies, and the possibility of increasing Canadian exports to those colonies, it may be well to inquire whether there is anything wrong with Canadian methods of handling the trade we already enjoy.

Trifling things sometimes make the difference between success and failure in developing an export business. Accuracy in making out invoices and certificates of origin and exact compliance with all customs regulations are absolutely essential. Small formalities, little courtesies, prompt and full replies to letters of inquiry, readiness to make allowances for different methods of doing business, fairness in dealing with complaints, care in packing not only to ensure safe transportation and save freight in cases where steamers charge by space instead of by weight, but also to suit the special requirements of the market, all have an influence in developing an export business. Each order should be regarded as a means of creating a favourable impression that will result in more orders.

CERTIFICATES OF ORIGIN.

Every customs collector in the British West Indian colonies that have joined in the Preferential Agreement complained that Canadian exporters were causing trouble by failing to make out proper certificates of origin. In many cases in each colony merchants have been obliged to pay the general duties instead of the preferential duties because they could not produce proper certificates. When these come to hand they get a refund, but a great deal of annoyance is caused to both merchants and customs officials.

The treasurer of one of the smaller colonies remarked: "You would be surprised to see what an amount of extra book-keeping and other clerical work this has caused us. We have had to employ an extra clerk on account of it. Then it takes time to talk to the merchants who are angry at having to pay extra duties, and they call to see me about it. I can assure you that it does not help Canadian trade. Sometimes no certificate of origin is sent and in other cases the certificates do not comply with the regulations. Eventually the proper certificates are usually secured and the merchants get back the extra duties they have paid, but we have a few cases of long-standing on our books."

To prove that he was making no idle complaint he showed the extra book-keeping that had been necessary on account of lack of proper certificates of origin. The number of extra entries was astonishing.

From British Guiana to St. Kitts the customs officials of the different colonies made similar complaints.

In insisting upon proper certificates of origin the customs officials of the British West Indies are really protecting the interests of Canadian exporters because if such certificates were not demanded the tariff preference which Canada enjoys would become a farce. It is very easy for Canadian exporters to comply with the conditions.

The certificate of origin agreed upon by all the colonies that have joined in the Preferential Agreement is as follows:—

**CERTIFICATE of Origin for Entry under the Canada-West Indies Preferential Tariff
of Articles Consigned Direct from the Country of Origin or Manufacture.**

I, hereby certify that I am (1) Insert the
(1) of the Exporter (a) word Partner,
..... of the articles included in this certificate, Manager, Chief
and that I am duly authorized to make and sign this certificate on Clerk or Principal
behalf of the said Exporter (a). Official,
giving rank
as the case
may be.

I have the means of knowing and I do hereby certify that the
merchandise designated below is of (2)..... (2) Country of
growth, produce or manufacture, which merchandise is to be shipped origin or
to (3)..... manufacture.
merchant at (4)..... (3) Port of
ultimate
And I further certify destination.
that I have the means of knowing that in the case of manufactured (4) Address.
goods a substantial portion of the labour of (5)..... (5) Country of
has entered into the production of every manufactured article included manufacture.
in this certificate of origin, to the extent in each article of not less
than one-fourth of the value of every such article in its present
condition.

.....

Name and address of Exporter.

PORT OF SHIPMENT.

Marks.	Numbers.	Number and description of packages and description of goods.	Quantity.	Value.

So certified under my responsibility.

.....
Signature.

Dated at this day of 191..

This certificate ceases to be valid after six months from date of issue.

A QUESTION OF INVOICES.

The Collector of Customs at Kingston, Jamaica, Mr. Robert E. Nunes, states that Canadian exporters are very careless about invoices, and the Jamaica Customs Department is consequently put to a great deal of trouble and inconvenience. Mr. Nunes said:—

“American exporters cause the same trouble in a lesser degree, but English exporters rarely do, and Germans never. By the laws of Jamaica the invoice for goods subject to duty according to value must distinctly and clearly set forth the marks and numbers of each package containing the goods detailed in such invoice; the contents of each package must also be shown and the value of each item forming the contents of the package and such values shall not be subject to any deduction on account of freight or other charges. It is also provided that in cases where no separate charges are made for the outside and inside packages or receptacles containing goods liable to duty according to value the fact that the cost of the coverings or receptacles is included in the cost of the goods shall be stated in the invoice, failing which the

value of such package will be appraised and duty charged thereon according to such appraisement. Canadian and American invoices are by far the worst offenders against these requirements, in consequence whereof a great deal of unnecessary trouble and labour as well as loss of time are caused to importers and to the Customs Department. I need hardly point out that it is to the best interest of shippers to save their clients trouble and so conserve the connection, the attainment of which end is not contributed to by disregard of the customs laws and mercantile requirements of the country with which business is sought; this condition of things gives rise to the view that the only care of the shippers is to sell and get rid of the goods without thought of the trouble that is engendered to the Customs and client in Jamaica owing to lack of care in preparing the invoice. Invoices received from Canada and the United States even for such articles as bales of hay are more frequently in the form and style of bills of parcels given for small retail transactions—utterly unlike the practice in reference to invoices for shipments made through shipping and commission houses—and as the growing tendency is to obtain goods direct from producers and manufacturers the ground for objection to insufficiency of invoices increases, particularly from Canada and the United States. In some cases the invoice is incorporated with, or forms part of the way-bill made in a manner utterly unsuitable to our customs requirements. I may mention that a marked feature in the importation of goods from the German Empire has been that the invoices were punctilious in regard to the requirements of the Jamaica Customs as well as the commercial needs of their clients."

DELAYS IN DELIVERY.

Wherever I went in the West Indies I found a friendly attitude toward Canada, but almost every business man interviewed said that when orders were sent to the United States they got delivery of goods much more promptly than when they were sent to Canada. In proof of this in a number of cases there were shown the files of letters and cables ordering goods and the dates of delivery. A few examples of delays in delivery may be mentioned without publishing the names.

A leading merchant of Kingston, St. Vincent, who regularly buys considerable quantities of Canadian flour, mailed March 27, 1914, to a Canadian flour mill a large order. On the 1st of June, nine weeks and three days after the letter was mailed the flour had not been delivered. This merchant showed me in his order book case after case of delays in delivery. Another large importer of flour, one of the wealthiest merchants in St. Vincent, showed me a cable order for flour sent on April 18, 1914. The flour had not been delivered on June 1, six weeks and two days after the cable order was sent. Both the orders referred to were sent to Canadian mills with whom they had been dealing regularly for some time, and I was informed that they had always paid promptly. The merchants blamed not the flour mills but the long railway haul in Canada for the trouble.

On July 2 the manager of an important business house in Grenada said: "On May 22 we mailed a letter ordering flour from Canada. I know the steamer on which the letter went reached New York on May 30 and the letter must have been delivered in Canada not later than June 1. That is over a month ago and the flour is not yet to hand. The next steamer from Canada will arrive July 15. If we get it then it will be six weeks and two days after the order was received in Canada."

An importer of flour in the island of St. Lucia showed me a cable order for Canadian flour sent on April 16, 1914. It was delivered six weeks and five days afterward.

The manager of an old established business house in San Fernando, Trinidad, said that he had never got flour from Canada in less than five weeks from the time he cabled for it.

A Port of Spain merchant who imports as much as 40,000 barrels of flour annually and large quantities of oats was very emphatic in condemning the delay in deliveries of both flour and oats. Among other cases referred to was an order for two thousand

bags of oats sent to Montreal in April, 1914. On the 14th of July when I interviewed him he told me that he had received invoices and drafts as follows:—

Invoices—

350	bags	oats,	dated	May	5.
350	"	"	"	"	15.
350	"	"	"	"	15.
333	"	"	"	June	18.
333	"	"	"	"	25.
333	"	"	"	"	25.

While he had received all these invoices and a draft with each invoice he had only received the following deliveries:—

350 bags on *Caraquet*, June 18.
350 bags on *Chaleur*, July 3.

Thus the first delivery was over six weeks after date of invoice and the second delivery seven weeks after date of invoice. He said he believed the shipper in Montreal was not at fault and he knew the steamship company was not to blame. He thought that probably the railways were responsible.

These examples of delays in deliveries in different colonies will be sufficient to show how serious the matter is.

I was told, on the other hand, by several merchants in different islands that the Canadian flour mills with which they dealt kept sufficient supplies of flour in warehouses at Halifax to ship promptly, and that there was no delay in delivery. As the ships leave Halifax fortnightly and take only fourteen days to reach Trinidad if a western mill always kept sufficient supplies in warehouse at Halifax there need never be long delays in delivery. The longest delay would be in a case where the order was received immediately after the ship sailed from Halifax. On the other hand West Indian merchants said that if very large supplies of flour were kept in Halifax or St. John warehouses it would not be fresh when it reached the West Indies and as flour spoils quickly in that climate it is desirable that it should be as fresh as possible when it leaves Canada. An agreement for six months or a year in advance providing that a certain quantity of flour shall be forwarded on each ship leaving St. John or Halifax is the most satisfactory arrangement. With such an understanding the flour manufacturer can not only make sure of having the specified quantity at the port of shipment in good time, but can make arrangement with the steamship company in advance to carry a certain quantity on each trip whereas when shipments are made on short notice there is a possibility of being unable to secure space. But in spite of such advance arrangements there will sometimes be rush orders which can only be filled quickly by having small quantities of flour in warehouses at the port of shipment.

DRAFTS BEFORE GOODS.

The complaint that I heard most frequently in the British West Indies was that Canadian business houses draw against shipments long before the goods are delivered. If the draft is not accepted immediately because the goods have not arrived, it is presented again and again by the bank messenger to the intense annoyance of the merchant. I was told there was no such trouble with either American or English drafts. I would suggest that Canadian exporters should in every case write on the draft in red ink, "Hold for acceptance until arrival of goods."

It is customary for many of the American and British houses to allow their customers a line of credit and permit them to remit at regular intervals. When American and British houses do draw they take care that the drafts shall not be presented before the goods arrive. Many of the British and American exporters put on the draft the name of the ship by which the goods are sent and the date of sailing. It would be an

easy matter for shippers in St. John and Halifax to make sure that the drafts go out by the same ship as the goods, and they could put the name of the ship and date of sailing on the draft. The western shippers cannot do this unless they have representatives in Halifax or St. John and make all shipments through them.

Canadian bankers might help the export trade by giving serious consideration to the question of the best means of putting an end to the great dissatisfaction that has undoubtedly been caused throughout the British West Indies by the presentation of drafts before the goods arrive.

In cases where drafts are sent for collection to Canadian banks having branches in the British West Indies it might be wise, instead of sending drafts direct to the branch banks in the West Indies, to send them to the Halifax branch of the same bank, which could assign to one of its clerks the duty of making sure that each draft went out on the same ship as the goods it covered. An arrangement could no doubt be made with the Royal Mail Steam Packet Company's agent in Halifax by which the bank would be notified as soon as the goods arrived in Halifax what boat they would be shipped on. The bank could then attach a slip to the draft giving the name of the ship taking the goods and the date of shipment.

NEW YORK COMMISSION HOUSES.

Throughout the British West Indies a large proportion of the merchants have been accustomed to buy through New York commission houses nearly everything excepting what they imported from the United Kingdom. The New York commission merchants have for years made a specialty of the West Indian business. They usually give rather long credits and allow the merchants to remit instead of drawing on them. Many of the British merchants also give long credits, while before the war the Germans were particularly ready to give time for payment. In stating these facts I am not advocating the adoption of a system of long credits. This is a matter that the exporter himself must decide, but it is important that Canadian produce merchants and manufacturers who think of exporting goods should know the existing conditions. In some cases New York commission houses quote a cash price and charge interest at the rate of six per cent until payment is made.

As an inducement to pay cash to the Canadian exporter instead of getting credit from a New York commission house there is the tariff preference and the Canadian who gets cash or payment in thirty days should be able to offer goods at a lower price than his competitor who gives long credits. But it is exceedingly important that the customer in the West Indies should not be constantly irritated by having drafts presented for acceptance long before the goods arrive.

It is worthy of note that several of the large American flour mills that formerly did their business with the West Indies through New York commission houses are now dealing directly through their own agents. A Barbados man who acts as agent for a Canadian flour mill and also represents a number of other lines of Canadian manufactures told me that one of the American flour mills offered him six thousand dollars per annum salary if he would abandon all his Canadian agencies and devote his whole time to selling their flour. He declined the offer because he believed that under the Preferential Agreement he would make more money representing Canadian manufacturers.

GERMANY'S LONG CREDIT SYSTEM.

Everywhere I was told that the Germans gave very long credits. In Jamaica a bank manager stated that six months was commonly offered by German houses and they often allowed much longer credits. How the Germans were able to finance these long credits was a mystery. Their competition is temporarily entirely eliminated and it is probable that for a long time after the war is over they will not be in a position to finance long credits.

PROMPT ANSWERS TO LETTERS.

There is one respect in which Canadian manufacturers might well imitate the Germans. All the merchants whom I interviewed agreed that the success of German trade was largely due to unfailing courtesy in promptly answering letters, replying in good English to all questions and giving the fullest information, as well as their readiness to accept suggestions regarding changes required in goods to suit the market or changes in methods of packing. Because we do not agree with German policy there is no reason why we should not imitate the systematic German business methods which have in a few years secured so large a share of the world's trade.

BANKING FACILITIES.

The Royal Bank of Canada has one branch in Jamaica, three in British Guiana, two in Trinidad, one in Barbados, one in Grenada, one in Dominica, one in Antigua, and one in St. Kitts. The Bank of Nova Scotia has eight branches in Jamaica. The Colonial Bank has branches in British Guiana, Trinidad, Barbados, Grenada, St. Vincent, St. Lucia, Dominica, Antigua, St. Kitts and Jamaica.

THE CURRENCY SYSTEM.

In all the British West Indian colonies that have joined in the Preferential Agreement with Canada there is a mixed currency system of dollars, shillings and pence. The Royal Bank of Canada, the Bank of Nova Scotia, and the Colonial Bank issue five dollar notes in each colony where they have branches, and the Government of Trinidad issues a one dollar bill, but English silver coins and English pennies are used.

The use of one dollar and five dollar bills together with English coins as a currency makes it absolutely necessary to have a fixed rate of exchange, and throughout these colonies an English penny is always reckoned as two cents, an English shilling as 24 cents and an English pound as \$4.80.

A Canadian or an American five dollar bill is worth \$4.92 in these colonies. In most of the stores it is accepted at its face value, but when the merchant deposits the Canadian or American five dollar bank note in a local bank he receives credit for \$4.92.

POSTAL MONEY ORDERS.

When a post office money order is sent from Canada to the West Indian colonies included in the Preferential Agreement, in payment for goods purchased or in payment of an agent's commission, the post office in the West Indian colony only allows \$4.80 for \$4.87 of the Canadian money order. A Canadian post office money order for \$5 cashed at a post office or any bank in those colonies brings only \$4.92. A Canadian post office money order for \$50 brings \$49.28. The rate of bank exchange of course fluctuates, but the post office authorities have fixed on this permanent rate as representing the average.

While the rate of exchange fluctuates in all countries, it is customary in Canada in ordinary calculations to reckon a pound sterling as equal to \$4.867. Sometimes for greater convenience it is reckoned at \$4.87. The British West Indian post office authorities assume that the pound sterling is worth \$4.87 in Canada, and as it is worth \$4.80 in the British West Indies it is considered that a permanent exchange rate of \$4.80 in West Indian currency for \$4.87 of Canadian money is approximately correct. The same basis of exchange is used in cashing American post office money orders and has been recognized as correct by the United States Post Office Department.

A Canadian remitting payment of a debt of \$5 in the West Indies by means of a post office money order should therefore get a money order for \$5.09, and in making

payment of \$50 the post office money order should be for \$50.90. It may seem a small matter for the West Indian to suffer the loss of a few cents in the exchange, but it is an undoubted fact that as much irritation is sometimes caused by a shortage of cents as by a shortage of dollars in making payments.

If instead of remitting a post office money order a bank draft is bought for the purpose the bank will charge for the draft according to the fluctuating rate of exchange but the cost will ordinarily be very nearly the same.

In Jamaica the Royal Bank of Canada, the Bank of Nova Scotia and the Colonial Bank issue pound notes. English silver is used, but there is a Jamaica issue of penny and half-penny coins, and even the newsboys refuse English pennies.

In all the island colonies the Government statements are made in pounds, shillings and pence, but in British Guiana they are made in dollars and cents.

INSURANCE OF SHIPMENTS.

A leading commission merchant of Trinidad referring to Canadian business said: "It has been the custom unless otherwise instructed for both English and American shippers to insure shipments, charging the cost in the invoice against the purchaser, and if contrary instructions are not given it would be advisable for the Canadian shipper to follow this plan, for as the West Indian merchant is used to this being done he might not have his goods protected, and if loss occurred friction might arise as to who was responsible for the loss. It would facilitate business if the Canadian manufacturer would make his quotations either c.i.f. that is at prices which would cover cost, insurance and freight on goods delivered at the purchaser's port, or at f.o.b. prices, that is free on board steamer at point of ocean shipment. I have known instances where Canadian manufacturers in quoting f.o.b. claimed that they meant their quotation to be f.o.b. cars. They have probably acted in good faith, but the result has been misleading to the parties at this end, as we are always accustomed by the term f.o.b. to understand that it means f.o.b. steamer at port of shipment. Of course it should be understood that f.o.b. also means that there is no charge for the packages unless it has been specially agreed upon, except in the case of molasses and such other goods as would require special packages."

SMALL PACKAGES.

It pays to put up goods in small packages so far as possible. The masses of the people never buy much at a time. It is easier to get them to pay twelve cents three times than twenty-four cents once. The wife of a merchant in Port of Spain said: "Even in households of the well-to-do classes there is a preference for small packages for two reasons. In the first place in this climate insects are apt to get at opened packages, and the merchant has better facilities for keeping things in good condition than the housewife. In the second place we find that our black servants are much more inclined to be wasteful if we get large quantities of anything at one time. If we have only a little they are careful of it."

PACKING FOR OCEAN TRANSPORTATION.

The exporters should note that on many classes of goods the steamship charges by measurement instead of by weight. For example, a merchant who sells metal bedsteads said that when imported from Canada he had to pay more freight than when imported from the United States, not because the freight rates from Canada were higher, but because as packed in Canada they occupied more steamship space.

PACKING FOR RIVER TRANSPORTATION.

Canadian flour manufacturers should note that the men engaged in collecting balata in the forests of British Guiana as well as the gold and diamond miners get

their supplies by small boats that run up the rivers into the interior. Bags of flour cannot be carried in this way and it is necessary to pack it in 50-pound tins hermetically sealed. American flour manufacturers take great pains in packing for this trade. They enclose the tin box in a strong wooden box. I was told in Georgetown that some flour had come down from Canada packed in tins for this trade, but instead of putting the tins each in a separate wooden box they were put in crates with two in a crate and when they arrived the tins were badly battered.

The Georgetown merchants also send considerable quantities of flour and other provisions up the rivers of Dutch and French Guiana, such provisions being held in bond until time for shipment to the Dutch and French possessions.

Both as regards shipments up the British Guiana rivers and those going to the Dutch and French colonies it should be noted that they are loaded on steamers at Georgetown and at the head of steamship navigation on the rivers they are transhipped from steamers to small river boats. At many points these small boats must be portaged around rapids and waterfalls and it is sometimes necessary to remove a part of the cargo at the portage and carry it across on mule back or in some other way. Thus it is very important that goods shall be packed to stand rough usage.

From Trinidad great quantities of goods are sent up the river Orinoco for Venezuelans. In the upper reaches of the river goods must be transhipped from steamers to small boats and should be packed accordingly.

PACKING FOR HEAD CARRIAGE.

A Government official of Grenada said: "Canadian exporters of flour might do a large business in this colony if they would take into consideration the fact that a number of the peasants come into town carrying trays or baskets on their heads full of products grown on their little properties which they offer for sale in the town. If flour were done up in small packages that could be conveniently carried on the head it would sell more readily and this is true of other things also."

PACKING FOR DONKEY AND MULE BACK.

All the cities, towns and villages of the British West Indian colonies that have joined in the Preferential Agreement are nearly on sea level. In Jamaica some of the villages are at high elevations, but in most cases they are not far from stations of the Government railway. Consequently packing of large shipments of goods for transportation on mule back is not necessary as it is in some parts of Mexico, Central America and South America where quite important cities and towns are at high elevations. But throughout the British West Indian colonies a large proportion of the peasants own donkeys or mules. When they do not walk to town with loads on their heads they commonly bring donkeys or mules, sometimes with small donkey carts, but often with panniers on each side of the donkey's back. These panniers need to be evenly balanced and packages of very large size cannot be conveniently carried in them.

FLOUR IN BAGS OR BARRELS.

In Montserrat, Dominica and St. Lucia there is a preference for flour in barrels rather than bags because the barrels can be used for limes, but in Trinidad, Barbados, Grenada, St. Vincent, St. Kitts and Antigua bags are generally preferred. There is no demand for flour barrels for sugar, molasses or cacao. I was told in Grenada that the peasants often made clothing out of the old flour bags.

THE LANGUAGE OF THE COLONIES.

It must not be supposed that because these are all British colonies and the sentiment is undoubtedly everywhere enthusiastically British that the people all speak English.

In Barbados, Antigua, St. Kitts, Nevis, Montserrat and St. Vincent, as well as in Jamaica and the Bahamas, English is universally spoken. In British Guiana there is quite a large Portuguese population, but they can nearly all speak English. The negroes speak English and a considerable proportion of the East Indians have learned English. In Trinidad a larger proportion of the East Indians have learned English than in British Guiana. All the children attending the Canadian mission schools in Trinidad learn English perfectly. There is no doubt that English will become the general language of the East Indians in Trinidad. Many of the Trinidad negroes speak a French patois, but all the children are being taught English.

In Grenada, St. Lucia and Dominica a French patois is spoken by a large proportion of the black people, but all the children learn English in the schools and the use of English is always increasing. All the business men, all the planters and a great many of the black peasantry already speak English.

Chapter III.

THE MARITIME PROVINCES AND THE WEST INDIES.

The trade of the British West Indies should be largely controlled by the Maritime Provinces of Canada. The flour trade will go to the central and western provinces of Canada because the Maritime Provinces do not produce wheat to any great extent and it will probably always be more economical to manufacture flour farther west. It is the general opinion of the customs collectors and the merchants throughout the British West Indian colonies that Canada will soon monopolize their flour market. If the Preferential Agreement between Canada and the British West Indies accomplished nothing else for the central and western provinces it would be well worth while. The manufacture of flour for the West Indies makes a home market for Canadian wheat that is more certain than any foreign market that might be suddenly closed against Canadian wheat by hostile tariff legislation. The West Indian planters will never produce wheat or flour. No class of the people in those colonies will ever desire a protective tariff against Canadian flour. Canned peaches and perhaps some other kinds of canned fruits can best be supplied by Ontario and British Columbia. But as regards apples, potatoes, cabbages, butter, condensed milk and cheese, the advantage which the Maritime Provinces possess in freight rates to the West Indies should give them the largest share of the trade.

The Maritime Provinces and British Columbia will share the fish market, but the Pacific Province will supply chiefly canned salmon, while the Maritime Provinces will supply dry salted and pickled codfish, pickled mackerel, smoked and pickled herring, etc.

A CERTAIN MARKET FOR PRINCE EDWARD ISLAND.

Prince Edward Island should pay special attention to the production of butter and condensed milk for the West Indian market. There will always be a steadily increasing demand for these products, and Prince Edward Island potatoes can always find a ready sale there.

ANNAPOLIS VALLEY APPLES AND POTATOES.

For the apples and potatoes of the Annapolis Valley a large sale should be developed. As stated in Chapter IV of this report, the apple trade needs to be worked up, but a large demand for potatoes, butter and condensed milk already exists, and is certain to grow.

NOT A CHEAP FOOD MARKET.

As regards ordinary manufactured goods, the British West India market is a cheap one, and our manufacturers will have to compete with the cheap labour of the United Kingdom and continental Europe, but as regards northern food products, whether fresh or in preserved or manufactured form, it is not a cheap market, and there seems to be no reason why those colonies should get their supplies of butter, condensed milk, cheese, potatoes and other vegetables from the United Kingdom and the countries of continental Europe when the Maritime Provinces of Canada are so much nearer at hand, and as a result of steamship arrangements made by the Canadian Government, have a decided advantage in freight rates.

Nova Scotia and New Brunswick have already a good market for white pine and spruce in those colonies.

A CHANCE FOR MARITIME MANUFACTURERS.

As regards the market for ordinary manufactures—iron, wood, cotton and woollen manufactured goods, the very fact that Canadian manufacturers must meet the competition of manufacturers of the United States, the United Kingdom and even continental Europe, makes it important that every unnecessary item of expense should be eliminated. The expense of the railway haul from the central or western provinces to any seaport is a serious handicap. In many cases it is sufficient to turn the scale and make it unprofitable to manufacture for the West Indian market in competition with the manufacturers of the United Kingdom or the United States. But if the factories were located in St. John or Halifax the expensive railway haul would be entirely eliminated; the ocean freight rate would be lower than from the United Kingdom or any country of continental Europe, and just as low as from New York, while on a great variety of manufactured articles the Canadian manufacturers would enjoy the advantage which the Preferential Agreement gives them over the manufacturers of the United States and any other foreign country.

The raw materials for iron, wood, cotton and woollen manufactures can be laid down in St. John and Halifax as cheaply as in Toronto or Montreal, and the labour cost should not be higher. Why then should not these two cities of the Maritime Provinces take advantage of their geographical situation and their fine harbours which are open to navigation every day of the year.

The growth of St. John and Halifax has been very slow compared with that of Montreal, Toronto, Hamilton and other cities of Western Canada, because the long railway haul to the western provinces has placed them at a disadvantage. But here is a trade that requires no railway haul whatever.

It would seem therefore that the Canadian Government in securing a Preferential Agreement with the British West Indies have conferred a great benefit upon the Maritime Provinces. The question is, will the farmers, merchants, manufacturers and capitalists of those provinces take advantage of the opportunities that are offered them.

But the advantages which St. John and Halifax possess for conducting trade with the West Indies is not a matter of merely local interest. It is worth while for the manufacturers and merchants of central Canada who think of doing business in the West Indies to consider whether it would not pay to have branch houses in St. John and Halifax. Many manufacturers in Ontario and Quebec have already adopted the principle of having branch houses in Western Canada. A number of Ontario companies have distributing houses in Winnipeg, Regina, Calgary, Edmonton and Saskatoon, and one of the largest wholesale dry goods houses in Toronto recently arranged to establish a wholesale branch for Western Canada in Brandon, Manitoba, and a very large building has been constructed for the purpose.

If it is good policy to have branch distributing houses and branch factories in so many western cities, why would it not be well to have branches also in St. John and Halifax to look after the West Indian trade? The cost of operation would not be so great as the cost of operating western branches, and in some lines of manufacture, distributing houses or factories in St. John or Halifax could take care of business in the Maritime Provinces as well as in the West Indies.

Every city and town in Western Canada is constantly endeavouring to induce Ontario manufacturers to establish western branches. Have not St. John and Halifax something to say about the advantages which they can offer to branches of Ontario and Quebec factories?

In chapter II of this report I showed what serious delays there often are in the delivery of flour from western mills and how promptly delivery can be made when sufficient quantities of flour are kept in warehouse at Halifax so that there will be no railway haulage after an order for shipment is received. What is true of flour is true of every class of goods.

It would be worth while to consider what lines of manufactures that are especially suited to the requirements of the West Indies would be also suited to the tropical

countries of Central America, South America, and Africa. The larger the output of a factory the cheaper the production as a general rule. If the same class of goods could be sold in other tropical countries as well as in the West Indies factories could specialize on certain lines. The geographical situation of St. John and Halifax is exceedingly favourable for trade with South America and North Africa. It is a remarkable fact that St. John, while over 2,000 miles nearer to Liverpool than New Orleans, is also over 200 miles nearer to Rio Janeiro, Buenos Ayres and Cape Town, South Africa. Halifax has a similar advantage. The fact that the Maritime Provinces of Canada extend far eastward in the Atlantic places them nearly in line with South America, which lies much to the east of North America, and shortens the distance to Africa, which is still farther to the east. With the right kind of goods manufactured in Halifax and St. John and good steamship facilities those cities could have a great trade with the two southern continents.

Halifax has an advantage over St. John in being the last port of call on the outward voyages, but St. John has the advantage in being the first port of call on the inward voyages. It would therefore be of great advantage to St. John if a large import trade in West Indian products could be developed.

Chapter IV.

IMPORTS OF FARM PRODUCTS.

There is such an abundance of fruit, vegetables and nuts in the tropics at all seasons of the year that the people of the British West Indies could subsist without importing any food, but any one who has lived exclusively on tropical food for a short time will understand how pleasant a change it is to eat something of northern growth. The flavour is so different. Even the poorest classes of the people in the West Indies have already an appetite for northern products.

FOND OF CANADIAN POTATOES.

The East Indian coolie in spite of his economical habits will pay a little more for a northern potato than for any of the tropical vegetables that are so plentiful.

As some of the colonies do not distinguish potatoes from other fresh vegetables in their trade statistics, and in some cases fruits and vegetables are classed together, it is impossible to give the exact figures of potato imports for the British West Indies as a whole, but in British Guiana during the six years ended December 31, 1913, imports of Canadian potatoes amounted in value to \$387,806. Last year the quantity of potatoes imported from Canada was less than the average of the previous six years, the value being only \$55,175, but potatoes were imported from the United States to the value of \$17,188, from the United Kingdom to the value of \$12,442, from Holland to the value of \$10,739, from Portugal to the value of \$3,904, and from Germany France and Denmark in small quantities. In ordinary years Canada supplies about one-half of British Guiana's demand for northern potatoes. A grocer in New Amsterdam, British Guiana, stated that the East Indians were much fonder of northern potatoes than the black people. They constantly asked for them.

Statistics of the potato imports into Jamaica are not available for last year, but for the previous year they were valued at \$24,555, as compared with \$110,659 for British Guiana in the same year. Thus Jamaica with about three times the population of British Guiana imports less than one-fourth as many potatoes.

While the trade statistics of the British West Indian colonies are based on the calendar year ending December 31, the Canadian statistics are based on the fiscal year ending March 31. During the fiscal year 1914, according to the report of the Canadian Trade and Commerce Department, Canada exported 63,825 bushels of potatoes to British Guiana and 47,738 bushels to the British West Indian Islands.

PEDDLING APPLES.

The apple is not nearly so well known in the West Indies as the potato, but a grocer in Georgetown, British Guiana, said that after having purchased some British Columbia apples he arranged with an East Indian coolie to peddle them in the East Indian settlements and on the plantations where East Indians are employed. The result was surprising. The peddler came to him again and again for fresh supplies of apples.

A black woman who was peddling apples in Port of Spain, Trinidad, said that she had a very good sale for them. She carried them on her head piled on a large wooden tray. She said she bought them from a grocer.

If associations of apple growers in Canada could arrange for the effective introduction of their product into the West Indies large sales might be made. As yet

probably very few of these people know the taste of a Canadian apple. At the present stage of development it would be useless to send most of them a book of recipes for cooking apples in a variety of ways such as has proved so popular in Canada. It is desirable that the apples should go from the farmers in Canada to the consumers in the West Indies without the expense of too many middlemen as they must be sold at moderate prices.

The apples should be sent regularly and frequently but not in large quantities except where first-class cold storage facilities are available as they quickly deteriorate in the climate of the West Indies.

APPLES IN COLD STORAGE.

In Georgetown, British Guiana, a grocer showed some British Columbia apples that had been in cold storage for three months. They were in excellent condition and of fine flavour. The superintendent of a large cold storage warehouse in Georgetown stated that he had kept British Columbia apples in cold storage for nine months and found them in perfect condition at the end of that time. He said the chamber containing them was never opened during the nine months. He found that apples in a cold storage chamber which was opened frequently to get supplies would not be kept in good condition for more than three or four months.

None of the colonies show the imports of apples in their trade statistics. They are classed with "Fresh fruit" or "Fresh fruit and vegetables." The quantity imported is very small, but if the masses of the people were made acquainted with the flavour of Canadian apples the demand would greatly increase.

PRESERVED FRUITS AND VEGETABLES.

The apple is the only fresh Canadian fruit that could be sent to the West Indies, but a sale of dried and canned fruits and vegetables might be developed.

It would probably be possible to create a large general demand for dried or evaporated apples if the people were made acquainted with their merits. They could be placed on the market more cheaply than canned fruits, and that is a very important consideration in these colonies.

The customs statistics of some of the colonies class canned fruit and vegetables together. In other colonies dried fruits and canned fruits and preserves in jars are classed together. With so many different classifications it is impossible to ascertain how much of each kind is imported into the colonies as a whole. The trade statistics of British Guiana class dried, canned and preserved fruits together. The imports for home consumption in that colony amounted to 123,157 pounds, valued at \$12,080, and Canada only supplied 36 pounds valued at \$2. Trinidad imported for home consumption last year canned and bottled fruits, jams and jellies to the value of \$13,099, of which Canada supplied \$86 worth, and dried fruits to the value of \$21,825, of which Canada's share was \$4,550. Barbados imported for home consumption dried fruit to the value of \$7,488, while the value of fruit preserved in cans or bottles was \$3,897. These imports came entirely from the United States and the United Kingdom.

As in the case of fruits the different methods of classification and the fact that vegetables and fruits are sometimes classed together make it impossible to give the total vegetable imports of all the colonies. However, in the three most populous of the preferential colonies, British Guiana, Trinidad and Barbados, the imports of canned vegetables last year were valued at \$12,370, of which Canada's share was \$326.

The customs authorities require that the exact weight of the contents of a can of vegetables or fruit be marked on the can.

CONDENSED MILK.

In British Guiana, Trinidad and Barbados last year the imports of condensed milk for home consumption amounted in value to \$299,267. Including the other islands in the Preferential Agreement the annual consumption amounts in value to nearly \$305,000.

Jamaica's imports of condensed milk were valued at \$294,163, almost exactly the same as Barbados, Trinidad and British Guiana combined.

In the trade statistics of some of the colonies the quantities are not given, but Trinidad imported 2,174,976 pounds valued at \$215,500, and British Guiana 656,265 pounds, valued at \$60,483, a total of 2,831,241 pounds of condensed milk for the two colonies, of which Canada supplied only 18,184 pounds. The largest imports of condensed milk in these two colonies were from the United Kingdom, which supplied 1,697,000 pounds. Germany came next with 225,312 pounds. Switzerland took third place, sending 58,986 pounds, while Holland supplied 45,744 pounds, Austria 13,200 pounds, France 1,200 pounds, and small quantities came from other countries.

The countries of origin of Jamaica's imports of condensed milk last year are not given in the report at present available, but for the previous year, when Jamaica imported 3,155,186 pounds of condensed milk, the United Kingdom supplied 2,800,336 pounds, Belgium 114,140 pounds, the United States 99,684 pounds, Germany 65,605 pounds, Holland 44,150 pounds, Norway 12,674 pounds, Switzerland 8,025 pounds, Canada 1,342 pounds and Denmark 260 pounds.

During the fiscal year ending March 31, 1913, according to the last report of the Canadian Department of Trade and Commerce, Canada exported to the British West Indies 17,599 pounds of condensed milk. During the fiscal year 1914 Canada exported to the British West Indies 6,120 pounds of condensed milk.

Complete returns of the imports of foodstuffs for last year have not been published by some of the colonies at the time of writing this report. But even if they were available they would not be representative of a normal year because as already stated trade was affected by general drought.

BUTTER AND CHEESE.

In the three largest preferential colonies British Guiana, Trinidad and Barbados, the total imports of butter for the calendar year 1913 were 1,498,437 pounds, as compared with 1,720,667 pounds the previous year. The total imports of cheese in these three colonies were 540,833 pounds, compared with 555,526 pounds the previous year. The figures of imports of butter and cheese for all the preferential colonies during the calendar year 1912 were as follows:—

	Butter. Lbs.	Cheese. Lbs.
British Guiana.....	512,297	200,980
Trinidad.....	928,999	287,585
Barbados.....	279,371	66,961
Grenada.....	42,538	24,747
St. Vincent.....	34,834	9,707
St. Lucia.....	38,700	14,225
Antigua.....	56,477	12,164
St. Kitts-Nevis.....	23,345	26,201
Dominica.....	15,266	11,832
Montserrat.....	3,695	4,416
Virgin Islands.....	4,287	390
	1,939,809	659,208

Thus nearly two million pounds of butter were imported by the colonies that have joined in the Preferential Agreement, but Canada only supplied 38,461 pounds, as compared with 709,842 pounds from the United Kingdom, 629,765 pounds from France, 97,394 pounds from the United States, 89,591 pounds from Denmark, 20,535 pounds from Holland, 3,262 pounds from Germany, and small quantities from other countries. St. Lucia imported 2,360 pounds of butter from distant Siberia.

Canada made a much better showing with cheese than with butter, supplying 149,758 pounds, as compared with 65,999 pounds from the United States, 60,236 pounds from Holland, 44,818 pounds from the United Kingdom, 2,874 pounds from France, 1,324 pounds from Denmark, and small quantities from other countries.

During the fiscal year ending March 31, 1914, according to Canadian statistics Canada exported to British Guiana and the British West Indian Islands, 111,253 pounds of butter and 200,580 pounds of cheese.

CANADIAN FLOUR WILL BE SUPREME.

According to the report of the Canadian Department of Trade and Commerce, Canada exported to the British West Indian Islands and British Guiana, 430,878 barrels of flour during the fiscal year ended March 31, 1913, and 573,079 barrels of flour during the fiscal year ending March 31, 1914. As the Preferential Agreement went into effect in June, 1913, only about ten months of the fiscal year 1914 were under the influence of the Preferential Agreement, yet there was an increase of 142,801 barrels of flour exported, that is an increase of over 33 per cent over the previous year when there was no preference.

As Canadian trade statistics are based on the fiscal year ending March 31, while those of the British West Indies are based on the calendar year ending December 31, they do not correspond. We can form an idea of the demand for flour in the British West Indies by the statistics for the last year before the preference went into effect. In that year the colonies that are now included in the Preferential Agreement imported 600,060 barrels of flour, while Jamaica imported 303,155 barrels. Thus the British West Indies as a whole import about a million barrels of flour, and the quantity consumed will increase as these colonies develop. That Canada will supply almost the whole demand for flour in the preferential colonies seems certain, provided deliveries are made promptly.

"HARD BREAD" OR BISCUITS.

The manufacture of common biscuits or crackers has become quite an important industry in Jamaica, Trinidad, and Barbados. These biscuits are commonly called "hard bread" in those colonies. In addition to the home consumption, Barbados exported 701,765 pounds of biscuits last year and 1,043,805 pounds the year before. The exports last year went to the following countries:—

British Guiana.....	..lbs.	13,324
British West Indian Islands.....	"	625,598
Colon.....	"	13,780
French, Danish and Dutch West Indies.....	"	149,102

Trinidad last year exported 257,645 pounds of "hard bread" or biscuits of home manufacture to the following countries:—

British West Indies.....	..lbs.	158,152
Venezuela.....	"	97,857
Other.....	"	1,636

While manufacturing this "hard bread" these colonies import considerable quantities of biscuits of a better class. Barbados' total imports of "bread, crackers, biscuits and cakes" last year amounted to 39,327 pounds, of which 37,434 pounds came from the United States, 1,652 pounds from the United Kingdom, and 231 pounds from Canada. Trinidad while exporting biscuits of home manufacture imported last year 193,899 pounds of biscuits, "bread," and cakes, of which 82,139 pounds came from the United Kingdom, 72,838 pounds from the United States, 7,680 pounds from Canada, 2,022 pounds from Germany, and small quantities from other countries. British Guiana's imports of biscuits amounted to 201,744 pounds, of which 88,014 came from the United Kingdom, 87,014 pounds from the United States, 10,523 pounds from Canada, and the remainder chiefly from Barbados and Trinidad.

Grenada imported from the United States last year 214,113 pounds of biscuits "bread" and cakes, 168,658 pounds from Trinidad, 46,566 pounds from Barbados.

13,247 pounds from the United Kingdom, and 804 pounds from Canada. St. Vincent imported 350,404 pounds of common biscuits from Barbados and Trinidad and small quantities of fancy biscuits from other countries, Canada supplying a little valued at \$371.52. St. Lucia imported 48,028 pounds of common biscuits from the United States and 41,125 pounds from Barbados, while 17,532 pounds of fancy biscuits were imported from the United Kingdom, 2,240 pounds from the United States and 1,158 pounds from Canada. The Leeward Islands according to their last trade report imported 17,075 barrels of "bread" and biscuits, of which 10,831 barrels were from the United States. Jamaica's imports of "bread" or biscuits are very large, but are steadily decreasing, the quantities for the last five years being as follows:—

Year.	Quantities in Pounds.
1909	4,324,617
1910	4,075,804
1911	3,822,185
1912	3,071,815
1913	2,575,222

The decrease is no doubt due to the development of "hard bread" or biscuit manufacture in Jamaica.

Throughout the British West Indies American flour is used in the manufacture of biscuits. The manufacturers say hard wheat flour is not suitable for making biscuits. The Canadian biscuit manufacturers do not use hard wheat flour; they use Ontario wheat flour. Even the biscuit manufacturers of Winnipeg send to Ontario for flour to make biscuits, because the hard wheat flour produced in large quantities in their own city will not do for biscuits although it makes the best bread. But excellent biscuits are made from Canadian flour manufactured from Ontario wheat and the West Indian biscuit manufacturers should be made acquainted with this fact. The "hard bread" or biscuit manufacturing industry is already well developed in the West Indies and it is likely to expand. Ontario millers can supply the biscuit manufacturers with the right kind of flour for the purpose. To prove to them that it is the right kind of flour for biscuits it would only be necessary to show them the exceedingly good biscuits that are made out of it in Canada, for Canadian biscuits will stand comparison with biscuits produced in any country.

OATS AND OATMEAL.

The quantity of oatmeal consumed in the British West Indies is very small, but large quantities of oats are imported for feeding purposes and Canada supplies a large proportion. The exact quantities cannot be ascertained for all the colonies as oats are sometimes included with other grains. In British Guiana the imports of all kinds of grain amounted to 6,950,675 pounds, of which Canada supplied 3,483,157 pounds, the United States 2,044,292 pounds, Holland 733,004 pounds, the United Kingdom 505,270 pounds, while small quantities came from other countries. It is probable that the greater part of the 3,483,157 pounds of grain imported from Canada was oats. In Trinidad the oats are included with corn in the trade statistics, the total importations being 11,237,706 pounds, of which Canada supplied 9,423,774 pounds. Here again these importations from Canada were chiefly oats.

Barbados statistics leave no doubt as to the exact quantity of oats imported, the total quantity being 6,708,074 pounds, of which Canada supplied 5,159,715 pounds, and the United States 1,485,003 pounds, Holland 64,100 pounds, and the United Kingdom 48,048 pounds. Barbados also imported 33,725 pounds of rolled oats from Canada and 990 pounds from the United States. St. Lucia imported 256,842 pounds of oats, of which Canada supplied 143,909 pounds, Holland 49,200 pounds, Denmark 38,000 pounds, and United States 16,213 pounds. St. Vincent imported 132,900 pounds of oats from Canada, 10,880 from the United Kingdom, 8,000 from the United States,

and 6,400 from Denmark. Grenada imported 410,203 pounds of oats from the United States, 350,413 pounds from Canada, 332,360 pounds from the United Kingdom, 16,556 pounds from Holland, and 8,000 pounds from Germany. Jamaica imported 10,290 bushels of oats.

PEAS, BEANS AND LENTILS.

Peas, beans and lentils are given together in the trade statistics of most of the British West Indian colonies under the name of pulse. Some of the West Indian colonies produce peas, lentils and beans, but the importations are large. Barbados imported 1,544,692 pounds last year, of which 885,628 pounds came from the United Kingdom, 515,987 pounds from other West Indian colonies, 65,730 pounds from the Canary Islands, and 22,132 pounds from the United States.

Trinidad imported 1,607,640 pounds of pulse, of which the United Kingdom supplied 1,137,226 pounds, France 140,003 pounds, the United States 95,923 pounds, Venezuela 129,413 pounds, and other countries small quantities.

British Guiana imported 4,078,951 pounds of pulse, of which the British East Indies supplied 2,532,465 pounds, the United States 114,320 pounds, Holland 70,672 pounds, and France 40,342 pounds, small quantities coming from a number of other countries. Grenada imported 313,692 pounds of pulse, 119,358 pounds coming from the United Kingdom, 33,554 pounds from the United States, and 2,830 pounds from Canada.

St. Lucia imported 90,771 pounds of pulse, of which the United States supplied 40,017 pounds, the United Kingdom 25,620 pounds, and Canada 1,800 pounds, while the neighbouring colony of St. Vincent, which produces enough for its own requirements, exported 13,710 pounds to St. Lucia.

Imports of peas and beans into Jamaica amounted to 19,143½ bushels.

The manufacture of flour has been started in Jamaica recently. The manager of the mill is a Canadian. He said that he would give Canadian wheat a preference in buying supplies.

HAY AND CHAFF.

British Guiana imported 164,675 pounds of hay and chaff, of which Canada supplied 115,755 pounds, the United States 24,850 pounds, Holland 20,000 pounds, and small quantities came from other countries.

Trinidad imported 155,005 pounds from Canada, 298,301 pounds from the United States, 25,036 pounds from Argentina, and small quantities from other countries.

Barbados imported 390,305 pounds from Canada, 33,609 pounds from the United States, 50,432 pounds from Argentina, 3,680 pounds from the United Kingdom, and small quantities from other countries. Small quantities of hay and chaff were imported by the Windward and Leeward Islands.

OIL MEAL, ETC.

Owing to the fact that some of the colonies classify linseed oil meal with other meals and other colonies classify it with cattle foods, there is no way of deciding exactly what quantity is imported into the West Indies as a whole, but it was said that large quantities were used.

British Guiana imported 498,470 pounds of linseed oil meal from the United States, 57,484 pounds from Canada, and 2,240 pounds from the United Kingdom.

Trinidad imported 5,600,680 pounds of cattle foods, a considerable part of which was linseed oil meal. Canada supplied 602,755 pounds of cattle foods, the United States 4,422,196 pounds, the United Kingdom 39,988 pounds, and small quantities came from other countries.

LARGE IMPORTS OF MEATS.

If we take the British West Indian statistics of the imports of meats for the calendar year 1913 for all the colonies but the Leeward Islands and the previous year for that colony, we find the quantities of meats imported were as follows:—

	Pounds.
Trinidad.....	4,719,122
British Guiana.....	3,888,801
Barbados.....	2,072,835
Grenada.....	349,117
St. Lucia.....	142,608
St. Vincent.....	124,628
Leeward Islands.....	741,676
Jamaica.....	2,129,621
Bahamas.....	745,065
	14,913,473

British Honduras statistics are not available.

It should be noted that in addition to the quantities given above as imported by Jamaica that colony imported about \$21,000 worth of meats for which no quantities are given in the customs report.

The United States supply nearly the whole of the meats imported by the British West Indies, the quantity imported from the United States being over 14,000,000 pounds.

During the fiscal year 1914, Canada exported to the British West Indies, including British Guiana, 85,975 pounds of meats.

The meats imported into the British West Indies are chiefly salted pork and beef, although large quantities of bacon and hams are imported and a considerable quantity of canned meats. Very small quantities of fresh meats are imported.

LARD FROM THE UNITED STATES.

In addition to the imports of meats the British West Indies annually import about four million pounds of lard, nearly all of which comes from the United States.

Chapter V.

THE CONSUMPTION OF FISH.

In almost every market place of the British West Indies fresh fish are on sale. The waters surrounding these islands teem with fish and there are a considerable number of fishermen. Sometimes when the managers of sugar estates suppose that black labourers missing for the day are loafing they are really away fishing.

When I was at Soufriere, in the island of St. Lucia, a black fisherman came in with a large net full of fish. He filled a basket for himself and then emptied the net on the ground and stood placidly by while a crowd of black men, women and children filled their baskets.

"Our black people are generous," said a coloured merchant. "When a man gets a good catch of fish and has more than he wants himself he willingly shares with his neighbours."

I am indebted to Mr. Harry Vincent, a keen sportsman of Trinidad, for information regarding the fish found in the waters surrounding that island. He says there are eighty-five species of edible fish in those waters, many of them of very fine flavour. At all seasons of the year fish can be caught.

At the Port of Spain fish market over four thousand pounds of fish are sold daily, and including fresh fish sold by hucksters and merchants it is estimated that over five thousand pounds of fresh fish are sold daily on the average.

Mr. Vincent says that in the vicinity of the Bocas, a group of tiny islands at the entrance to the gulf of Para, the fishermen frequently capture in their seines schools of fish ranging from 10,000 pounds to 20,000 pounds in weight. They keep them alive in the seine under water, hauling the ends ashore and mooring the back of the bag or purse to a boat anchored out. Very often there will be six or more boat loads captured, but the fishermen, fearful of overstocking the market, only take a boat load at a time to Port-of-Spain. The fishermen sell the fish to middlemen at from \$2 to \$4 per 100 pounds, but the consumer has to pay from 10 to 12 cents per pound. Mr. Vincent says there is such abundance of fish that if well-equipped steam trawlers provided with a good supply of ice were put out immense quantities could be caught and the price to consumers reduced. The present methods of fishing are very primitive, the industry being prosecuted by a very poor section of the population without any capital to do things in the right way.

The cascadura, a fresh water fish caught in the shallow lagoons and pools of Trinidad, but not found in any other island, is regarded as a great delicacy by epicures.

While great numbers of edible fish of various kinds are caught in the sea about Barbados the flying-fish seem to be most abundant as well as most popular. Several years ago owing to the frequent loss of boats engaged in catching flying-fish the Government of Barbados appointed a committee to investigate and report on the conditions of the industry. As a result of their report a Deep Sea Fishing Boats Registration Act has been passed.

Two large Barbados boats are engaged in the whaling industry. In the Windward Islands black men tell tales of exciting whaling adventures.

In British Guiana all the rivers are full of edible fish. It is evident that there would never be a great demand in the British West Indies for fresh fish from Canadian waters even if cold storage facilities specially designed for fish transportation were provided on the steamers. But the people of the tropics are fond of smoked, dried and canned fish and surprisingly large quantities are imported into the British West Indies in view of the general abundance of fish in their own waters.

In a little East Indian country village store in Trinidad I saw smoked and dry salted fish. I asked the East Indian merchant why the people bought this fish when fresh fish were so plentiful in the waters around Trinidad. He replied:—

"Our people like the taste of dry salted and smoked fish better than that of fresh fish. Besides the fresh fish spoil so quickly. They can take the dry, salted or smoked fish home and keep it longer without spoiling. They never buy much at a time but they cannot afford to let even a little spoil."

The different colonies have different methods of classifying fish in their trade statistics just as they have different methods of classifying fruits and vegetables, so it is difficult to combine their figures and show briefly the quantities of the various kinds of fish imported.

The total imports of fish for consumption in British Guiana, Trinidad, Barbados, the Windward Islands and Leeward Islands in the calendar year 1912, amounted to 20,044,667 pounds, of which 11,132,976 pounds were Canadian. In the calendar year 1913 British Guiana, Trinidad and Barbados alone took 11,132,976 pounds of Canadian fish, but complete returns are not available for all the colonies for that year.

During the last five years the average annual value of imports of fish into Jamaica and its dependencies was \$965,055. Last year the value was \$969,078 as compared with \$785,484, the value of fish imported into British Guiana, Trinidad and Barbados, which jointly had a population of 801,576, as compared with 842,553 for Jamaica and its dependencies in 1911.

For the fiscal year ending March 31, 1913, according to Canadian statistics, the exports of fish to British Guiana and the British West Indian Islands were as follows:—

Codfish, fresh.....	lbs.	2,000
" dry salted.....	"	17,288,800
" wet salted.....	"	9,800
" pickled.....	"	25,800
Mackerel, pickled.....	"	3,958
Herring, fresh or frozen.....	brl.	13,300
" pickled.....	lbs.	33,469
" smoked.....	"	1,650,022
Other sea fish, fresh.....	"	180
" " preserved.....	"	752,729

For the fiscal year ending March 31, 1914, the exports of Canadian fish to British Guiana and the British West Indian Islands were as follows:—

Co. salted.....	lbs.	15,159,400
" pickled.....	"	800
" tongues and sounds.....	"	180
Mackerel, pickled.....	"	5,173
Hallbut, fresh.....	"	44
Herring, fresh or frozen.....	"	3,300
" pickled.....	brl.	31,949
" smoked.....	lbs.	1,040,411
Other sea fish, fresh.....	"	7,400
" pickled.....	brl.	10,684
" " preserved.....	lbs.	344,349

Canada exported 45,100 pounds of dry salted codfish to British Honduras during the fiscal year 1913 and 16,300 pounds during the fiscal year 1914.

Chapter VI.

SALE OF CANADIAN MANUFACTURES.

There are some lines of Canadian manufactures that can never find a market in the British West Indies. A manufacturer of radiators wrote asking if there was any demand for radiators; a manufacturer of warm winter gloves wished to know whether he could sell gloves in those countries.

COOKING UTENSILS IN USE.

It should always be remembered that every one of the British West Indian Colonies is in the tropics excepting a few islands in the Bahamas Archipelago. Even on the highest mountain peaks it is never cold enough for frost, and there is no demand for heating apparatus. There is cooking of course, and heat is required for that. At the homes of the well-to-do the kitchen usually stands at a little distance from the residence in order that the heat of it may not extend through the house. The masses of the people do their cooking in the open air. The demand for cooking ranges is not very great, but a few are sold every year in the larger towns or to the owners of large plantations. Where cooking ranges are used, ornamental stoves such as are required in Canadian kitchens, are not wanted. The cooking being done in outhouses by black cooks a cheap unornamental English stove is generally used. The peasant uses what is sometimes called a Dutch stove. This is nothing but a pot with provision for a fire at the bottom of it. Nearly every peasant in the West Indies has one. Some of them have more than one. Even the well-to-do who own kitchen ranges have these little fire pots, for their black servants like to use them for outdoor cooking sometimes. They are bought usually in England, but sometimes in Holland or Germany. Their use is so universal in all the colonies that if a Canadian manufacturer could produce them at a sufficiently low cost, there would be a really great demand. Perhaps the expense of a long railway haul from Central Canada to an ocean port would make it impracticable for Quebec or Ontario manufacturers to supply these fire pots cheaply enough, but a foundry located in St. John or Halifax might find the manufacture of the Dutch stoves a paying business. Possibly a Canadian manufacturer might produce an article that would be an improvement on the Dutch stove now in general use. They are bought and sold by weight. I have the prices at which British manufacturers sell the Dutch stoves and can furnish them to any manufacturer who may be interested. The Dutch stoves are sometimes called coal pots. There are different sizes, from 10 inches to 16 inches in diameter. They vary in weight from 8 pounds to 23 pounds according to size. The standard size is 12 inches in diameter, weighing 10½ pounds. The retail price is six shillings per pound. In fixing the retail price allowance is made for breakage in transportation. Nearly every house has two or three of these coal pots and a merchant in Trinidad stated that a pot in constant use only lasts about four months. The freight charges from St. John or Halifax would be less than from England or any other country from which they are now imported. The process of manufacture would be so simple that the labour cost could not be great. As regards raw material pig iron from Nova Scotia blast furnaces could be laid down at St. John or Halifax at low cost. There is also a general demand for pots and kettles to be used with the little Dutch stoves. They could be made in the same foundry.

In those towns and cities that have electric light, if the electric light companies would make a low rate for cooking there might be quite a large sale of electric cooking appliances which do not throw out heat. Any manufacturer of electric appliances who thinks of selling in the West Indies should communicate with the electric light companies.

I was informed that the street railway and electric light companies in Port of Spain, Trinidad, and Georgetown, British Guiana, which are controlled by Canadian capitalists buy their electrical appliances in the United States.

HEAVY BED CLOTHING NOT NEEDED.

The only bed covering ordinarily used is a cotton sheet. Sometimes no covering whatever is used, but nearly every one has cotton sheets. At some of the hotels I stayed at, no bed clothing was provided until a sheet was asked for. Yet when people have ague, they shiver with the temperature above 80 and are glad to have a woollen blanket, but ague is not common enough to make a large demand for blankets. Flannelette sheets are occasionally used.

CARPETS AND RUGS.

There is almost no market for carpets, rugs or matting, because housewives think they harbour insects. Smooth, hardwood floors are easily kept free from insects.

The weather is sometimes hotter in Canada than it ever is in the British West Indies, but the continuous heat of the tropics is very favourable to insect life. The most troublesome insects are the ants. Some of them are harmless but others are very destructive. They eat up carpets, rugs and even furniture unless it is of very hard wood. The house fly is less troublesome than it is in Canada. Very few house flies were seen in any of the colonies, and those that were seen seemed less active than Canadian flies. War is being waged on mosquitoes everywhere, and there is little doubt that the settled parts of the British West Indies will be almost free from them in a few years.

MOSQUITO NETTING FOR BEDS IN GENERAL USE.

All over the British West Indies, excepting on the Bathsheba coast of Barbados, and in some of the highland districts of Jamaica, every bed in the houses of the better classes is protected from mosquitoes by cotton netting. This cotton netting is imported from England and there must be a large demand for it.

SMALL DEMAND FOR WIRE NETTING.

The British West Indies have not adopted the custom of surrounding every veranda with wire netting, which prevails in the Panama Canal zone. The houses in the canal zone look like prisons compared with those of the British West Indies, where verandas and windows are wide open. The people of the British West Indies think it is healthier to let the trade winds blow through their houses, and it is surprising to find how cool many of the houses are even in the hottest hours of the day and how free they are from flying insects. On a few of the plantations it was noticed that the windows and verandas were protected by wire netting, but it is very much more generally used for windows in Canada than in the West Indies. Possibly a good house to house canvasser could sell wire netting for windows and verandas, but there is little spontaneous demand for it.

LITTLE DEMAND FOR WINDOW PANES.

There will probably never be a very great demand for window panes anywhere in the West Indies. Even some of the fine houses have no glass in their windows and in the houses of the poorer classes window panes are almost unknown. Many people

think window glass prevents ventilation. The windows have shutters which are usually open but can be closed when there is a heavy downpour of rain with a wind that might blow it into the house. There is usually a large shutter hung from the top of the window and standing out so that it acts as a shade against the hot sunshine, while it does not prevent the refreshing breeze from coming in.

NO DEMAND FOR HEAVY WOOLLEN CLOTHING.

There is of course no demand for heavy woollen clothing. Manufacturers of heavy overcoats could make no sales in the British West Indies, but there is quite a large demand for raincoats. Light woollen underclothes are often worn, although cotton and linen goods have a more general sale. White duck suits are quite commonly worn by men. Tweeds of very light woollen material are fashionable, but heavy tweeds such as are worn in Canada would be too warm for the West Indies.

READY-MADE CLOTHING.

The sales of ready-made clothing are not large. Tailors' charges are less in the British West Indies than in Canada and there is a strong preference for clothing made to order. Very often piece goods are bought and taken to a tailor to make up. Even duck suits are usually made to order. Sometimes the cutting is done by a tailor and the sewing done at home. In many houses almost without furniture there are sewing machines. A large American sewing machine company which has a branch factory in Canada is pushing the sales of sewing machines very energetically in the West Indies and the Spanish Main. This company makes Port of Spain, Trinidad, its headquarters for the Venezuelan trade, and all Venezuelan agents are under the direction of the Trinidad manager.

COTTON PIECE GOODS.

The consumption of cotton piece goods is very large. British manufacturers supply most of the cotton goods, but American coloured cottons are making headway. In every colony leading merchants said that American coloured cottons were fast taking the place of English coloured cottons, but the English white cottons still almost monopolize the West Indian trade.

English houses always make a charge for the case containing the goods. The price of the case is stated in the invoice. American houses never charge for the case.

The freight rates on cottons from New York to the British West Indies are considerably lower than from British ports. By the agreement between the Canadian Government and the Royal Mail Steam Packet Company the rates from St. John and Halifax to the British West Indian colonies that have joined in the Canada-West Indies Preferential Agreement must not be higher in any case than the rates from New York to those colonies.

The fact that the steamship charges for cotton goods by measurement and not by weight was referred to in Chapter I of this report. This should always be kept in mind in packing cottons for the West Indian market.

I secured several thousand samples of both British and American cotton piece goods from leading merchants in the different colonies. They took pains to select samples of cottons that had a ready sale and marked the prices on them.

The Leeward Island and St. Vincent statistical reports do not give the imports of cotton piece goods separately from other textiles. They include cottons, linens and woollens together. Some of the colonies in their reports give values but not quantities of cotton piece goods imported. However, taking the British West Indian Islands and British Guiana as a whole, it may be said that they import annually over three and a half million dollars worth of cotton piece goods.

In British Guiana, Trinidad and Barbados, the three most populous colonies in the Preferential Agreement, the quantity of cottons imported last year was less than

usual, but amounted to 26,985,249 yards, of which 24,177,590 yards came from the United Kingdom and 3,020,028 yards from the United States. The last report of the Jamaica Customs Department available does not give quantities of cotton piece goods, but the value of imports was £256,055, while the previous year the value was £246,591, of which £239,170 was the value of British cotton piece goods imported, and £104,058 was the value of cotton piece goods imported from the United States.

BOOTS AND SHOES.

Any one making a flying trip to the islands at which the Canadian steamers of the Royal Mail Steam Packet Company call will get the impression that Canada will never sell many boots and shoes in those islands. My first thought as: "Why should we sell them boots and shoes? They don't need them in this climate. They are happy barefooted. Why persuade them to wear shoes?"

It was afterward learned that it has been discovered that those who wear shoes regularly are not so liable to catch ankylostomiasis or hookworm, which lurks in the soil. Andrew Carnagie has donated a considerable sum of money toward the eradication of hookworm in the British West Indies, and a vigorous anti-hookworm campaign is about to be started. This fact that the continual wearing of shoes will greatly reduce the danger of getting ankylostomiasis is likely to be brought constantly to the attention of the people and it may have an important influence on the shoe trade in the near future. At present the only influence is fashion and the place where fashion holds sway is the church. In Roseau, Dominica, one does not see many shoes on week days, but wait until Sunday comes and go to church. There you will see that all Dominica is not barefooted. On the contrary nearly all the church goers seem to wear shoes and the churches are all crowded. I visited four churches of different denominations in Roseau one Sunday evening, staying a little while at each. It was the same at every church and shoes were not the only thing. The whole appearance of these people was transformed. Young women whose only head dress on week days was a large wooden tray filled with vegetables and fruit, wore hats bedecked with ribbons. Their mothers looked fine with coloured handkerchiefs wound about their heads. There were Sunday-go-to-meeting dresses worn with the shoes and hats. Fashion is a great thing and if it held sway in those islands every day of the week as it does on Sunday the sales of the merchants would greatly increase, for shoes and hats that are worn only on Sundays last longer than if they were worn every day of the week.

Any one stepping off at Castries, St. Lucia, will notice the strong, sturdy, energetic black women who load coal on the many ships that bunker there. Barefooted, barelegged and with great baskets full of coal on their heads, they move swiftly and persistently back and forth, vying with one another to see how many basketsful they can load in a day. But see those same women on Sunday at church! What a transformation! And why should they not set the fashion on Sunday when they earn as much during the week carrying coal as any man labourer in the Windward Islands!

Many of the people in the country districts come into town for church. If they happen to have donkeys it is easy to wear shoes, but if they have to walk the shoes are rather hard on unaccustomed feet; so they carry their shoes until they reach the outskirts of the town, when they stop to put them on and walk in quite able to meet the townspeople without shame. In the larger cities—Port of Spain, Georgetown, Kingston, and to some extent in Bridgetown, the wearing of shoes is becoming general on week days. The larger cities set the fashion for the smaller places and if fashion is aided by fear of ankylostomiasis there is no telling how many shoes may be sold in the British West Indies ten years from now.

The value of shoes imported by the British West Indian colonies included in the Preferential Agreement was \$363,892.80 in 1913, and \$437,721.60 the year before, while Jamaica's imports were valued at \$392,740 in 1913. The statistics of shoe

imports in the Bahamas and British Honduras are not available. Thus it will be seen that the sale of shoes in the British West Indies amounts in value to considerably more than three-quarters of a million dollars annually, which is not so bad for countries where shoes are only worn for show.

In the Leeward and Windward Islands very large sizes of shoes are in demand. There is a limited demand for small sizes for white people and the better class of coloured people, but the black people want large shoes. Thus a Dominica merchant told me that in cheap lines of shoes the women generally ask for 8 and 9 and men for 11 and 12 and 13, the largest demand being for 11 and 12. A Montserrat merchant said it was difficult to get American manufacturers to supply enough of the large sizes in any one order. But in British Guiana and Trinidad the demand for large sizes is proportionately small. The East Indians have small feet. Then in cities like Georgetown and Port of Spain a large proportion of the people have always worn shoes, and the constant wearing of shoes probably has a tendency to make the feet smaller. A leading shoe dealer of Port of Spain, Trinidad, showed his order book as an indication of the sizes in demand. In ordering 106 pairs of men's shoes, known as Blucher Balmorals, retailing at \$1.25 per pair, the number of each size from 6 to 12 was as follows:—

Size 6, 18 pairs; size 7, 36 pairs; size 8, 36 pairs; size 10, 12 pairs; size 11, 4 pairs; size 12, 2 pairs.

In an order for 36 pairs of men's Russia Blucher Balmorals, retailing at \$2.70 per pair, the sizes were:—

Size 5, 1 pair; size 5½, 1 pair; size 6, 4 pairs; size 6½, 3 pairs; size 7, 6 pairs; size 8, 6 pairs; size 8½, 6 pairs; size 9, 6 pairs; size 10, 2 pairs; size 11, 1 pair.

In an order for 48 pairs of men's Blucher Balmorals, retailing at \$2.20 per pair, the sizes were:—

Size 6, 6 pairs; size 6½, 2 pairs; size 7, 10 pairs; size 7½, 2 pairs; size 8, 10 pairs; size 8½, 2 pairs; size 9, 8 pairs; size 9½, 2 pairs; size 10, 4 pairs; size 11, 1 pair.

In an order for 18 pairs of men's patent two-eyelet Blucher Oxfords, retailing at \$2.50 per pair, the sizes were:—

Size 4½, 1 pair; size 5, 3 pairs; size 5½, 1 pair; size 6, 2 pairs; size 7, 3 pairs; size 7½, 2 pairs; size 8, 2 pairs; size 8½, 1 pair; size 9, 1 pair; size 10, 1 pair.

There is a good trade in Trinidad in men's heavy working shoes, both black and tan, selling at \$1.10 to \$1.50.

There is a large demand in Trinidad for ladies' high cut shoes retailing at from \$1 to \$2.50 per pair in light dress shoes. Ladies' cheap button shoes at from 65 cents to 90 cents per pair sell well. White canvas shoes for men, women and children retailing at 75 cents to \$1.50 for men, from 50 cents to \$1.20 for women, and from 40 cents to \$1 for children are in good demand. Men's cheap Balmorals retailing at from 75 cents to \$1.20 nearly all come from England, but fully three-fourths of the shoes ranging in price from \$1.50 to \$3.50 or higher come from the United States. This can be taken as a guide in proportion for ladies' and children's shoes as well. A limited number of high-class shoes retailing at as high as five or six dollars per pair are sold.

SHOES WITH WOODEN SOLES.

There is a great demand among labourers employed on the cocoa estates and some other occupations in Trinidad for shoes with wooden soles, tipped with iron. These shoes are about five inches high and are laced, having eight double eyelets. In the work among the cocoa trees shoes protect the feet. I neglected to inquire in Grenada whether there was a similar use of wooden-soled shoes on the many cocoa estates there. In Trinidad one merchant stated that he ordered wooden-soled shoes in lots of 4,000 pairs at a time and he sent a number of orders to England every year.

Canada should be able to make these wooden shoes as cheaply as England. Wood is cheaper in Canada and the labour cost in making them cannot be great.

HATS AND BONNETS.

Some of the colonies in their trade statistics include hats and bonnets with haberdashery and millinery, which they use in a wide sense to cover ready-made clothing, gloves, hats, etc., so it is impossible to state the exact value of hats and bonnets imported into the British West Indies as a whole, but it may be noted that Trinidad imports hats and bonnets to the value of about \$100,000 annually, British Guiana about \$70,000, Barbados between \$60,000 and \$65,000, the Windward Islands about \$23,000, and Jamaica about \$156,000. Most of the colonies do not classify the different kinds of hats imported, but in Jamaica out of a total of a little over \$150,000 the value of straw hats imported was \$82,000, and the value of felt hats \$40,593. The hats and bonnets imported into the British West Indies came chiefly from the United Kingdom but American hats are making some headway.

Jamaica is noted for its own Jippi Jappi hats manufactured from material grown in the island. They are similar in appearance to Panama hats.

In Port of Spain, Trinidad, it is the ambition of every black man to have a high silk hat and a frock coat to wear to funerals.

WEDDING AND FUNERAL GOODS.

Weddings are not very numerous among the blacks of the British West Indies. Marriage is a function not considered at all necessary by the masses of the people. The Government statistics show that the illegitimate birth rate varies in different colonies, but it runs from over 55 per cent to 70 per cent among the blacks. The statistical returns of illegitimate births among the East Indians are an injustice to them as they have their own marriage customs and usually observe them, although they do not conform to the Government regulations. As in India, children are often married, and an East Indian in Trinidad will mortgage his property to give his daughter a grand wedding. Many guests are invited. There is a great dinner; imported foods are extensively used, and for these occasions they want the best.

When the black people do have a wedding it is usually a great affair. Both bride and groom must wear fine clothes.

No one would make a fortune selling wedding rings, wedding cakes and other marriage accessories in the British West Indies, but while marriage is not a necessity burial is, and the greatest of all functions throughout these colonies is the funeral.

The membership of benevolent societies is extraordinarily large throughout the British West Indies and their most attractive feature is the provision for paying funeral expenses. There are some societies formed for the one purpose of paying funeral expenses. A small weekly payment made by the members assures for them and their families funerals that vary in grandeur according to the amount paid weekly.

If all the coffins used in the West Indies were made in Canada the work would give employment to a large number of workmen and make a market for considerable quantities of Canadian materials. There is a market also for other funeral accessories. Canada already exports coffins to those colonies and the exports could probably be greatly increased. Orders for coffins should provide for frequent shipments of small quantities. The approximate number of deaths annually in each colony is easily ascertainable.

AGRICULTURAL MACHINERY.

The present demand for agricultural machinery in the British West Indies is not very great. In the past sugar cane cutting machines have not proved a success anywhere, but recently a new machine has been invented for this purpose which is said to be an improvement on anything previously invented. It is now being tested in the Southern States and the experiment will be watched with interest by sugar cane growers.

If Canadian agricultural implement manufacturers could produce a cane cutter that would successfully and cheaply cut sugar cane it would have a large sale but it would have to be good enough to compete with the cutlass handled by men who work at from 25 to 30 cents per day.

Very few ploughs are used in the British West Indies, the work of tilling the soil being done with forks. In Trinidad the planters say the clay soil is too hard for ploughs. Only an expert agricultural implement man would be competent to express an opinion about this. In Dominica the clay soil is equally as hard and there is a real obstacle to ploughing in the steepness of the hills. In Dominica one day I saw a wagon carrying a load of something. On each side and behind marched policemen. When I inquired the meaning of this I was told that the wagon was loaded with dynamite which was to be used on an estate for loosening the hard subsoil. Yet this hard soil is very fertile. In St. Lucia, St. Vincent, Grenada and Montserrat, while there are steep hills there are considerable areas not too steep for ploughing. In Barbados, Antigua and St. Kitts there are a number of small ploughs drawn by oxen and a few English steam ploughs. There is no reason why ploughing should not be general in these islands.

In the British Guiana coastlands and all along the river valleys in the lowlands the country is so level that one would suppose that ploughing would be as general as on the prairie farms of Western Canada; but not so. The tilling of the soil on the large estates is generally done with forks, commonly three-pronged forks, as is the case in the British West Indian Islands. Ask the reason and you will be told it is because the irrigation and drainage ditches divide the estates into such small plots that ploughing could not be economically done.

FARM MACHINERY FOR RICE GROWERS.

Nearly all the rice produced in British Guiana is grown by East Indians on small plots of land owned by them or leased from the sugar estates on which they are employed. The methods of cultivation, harvesting and threshing are very primitive but are the same as those generally followed in the eastern countries from which the world's supply of rice chiefly comes.

However, several years ago a group of British and American capitalists secured from the Government on very favourable terms 24,000 acres of land with a frontage on the Abari Creek which they propose to devote to rice production on modern lines. When I was in British Guiana they had 4,000 acres under cultivation and part of this land was growing two crops so that they had the yield of 5,200 acres. The plantation is under American management and every part of the work is done with American farm machinery exactly the same as is used in wheat production in the United States and Canada. The only difference is that after the rice is sown the land is flooded with water which is drained off in time to permit the soil to get into good condition for the harvesting machinery. The manager, Mr. Mode Anson, said that they expected to have 20,000 acres in rice in the year 1916, but an extensive system of irrigation and drainage canals and ditches must be constructed in the meantime. For the present cultivation of 4,000 acres many miles of canals and ditches have been constructed. All this work was done by hand labour, 1,500 men being employed in the work, but the remainder of the canals and ditches are to be made with dredging machinery greatly expediting the work and lessening the cost.

The water supply is obtained from the Abari creek at a point about 12 miles from its mouth where the water is 37 feet deep. It is pumped from the river into the canals and by means of sluice gates the ditches in any part of the plantation can be filled and emptied, thus flooding and draining the land at pleasure.

As regards the economy of rice production with machinery, Mr. Mode Anson says that with less than 250 labourers they can produce as much rice as can be grown by 2,000 East Indians working in their primitive way without farm machinery on their

little plots of land. This is a matter of great interest to Canadian manufacturers of farm machinery, as the machinery used is precisely the same as our western farmers require for wheat production.

On the Abari rice plantation instead of a great number of short ditches there are long ditches. Mr. Mode Anson, the manager, says they have no difficulty in flooding and draining the land at will with these long ditches, and he thinks a sugar estate could be drained and irrigated in the same way. "We use machinery for everything," said Mr. Mode Anson, "and the saving in labour will soon pay the cost of machinery. We shall save over four hundred dollars per day in wages and that pays for a good deal of farm machinery in the course of a year. For our four thousand acres now in rice we use 12 four-horsepower gang ploughs, three sets of steam gang ploughs, two disc steam gang ploughs, three three-horse sulky ploughs, twenty-eight single disc ploughs, twenty-four disc harrows, fifteen smoothing harrows, fifteen large disc grain drills, twenty grain binders, three grain threshers, four tractor steam engines, one corn planter, two cultivators, one mower, one hay rake, eighty wagons, forty-five grain wagon frames, two road graders, one ditcher, two disc steam gang ploughs. We have besides a large pumping plant, two gasoline launches and eight gasoline engines of various sizes. We expect that our saving in labour costs will repay all the capital expended on this machinery. As we intend to have 20,000 acres in rice in the year 1916, we shall require more agricultural machinery. Our present machinery is all American, but we would have no objection to Canadian agricultural machinery if we can get it cheaper. If I were starting a sugar estate in this colony, I believe that I could greatly reduce labour costs by introducing machinery, but of course we can use machinery to a far greater extent for rice than we could for sugar cane, as we use exactly the same agricultural machinery for rice as for wheat in all the processes."

If the Abari Rice Plantation should prove as great a financial success as the men in charge of it anticipate, probably other large rice plantations will be established on the same system and the demand for agricultural machinery may become large. It would be worth while for Canadian agricultural machinery manufacturers to watch this experiment closely, as they are already manufacturing the same kind of machinery for use by wheat growers on the prairie farms of Western Canada.

In New Amsterdam, British Guiana, one of the leading merchants said that there was a very good sale for a small American plough. I think he said the price was \$2.50 f.o.b. New York. The East Indians used these ploughs in preparing their land for rice. He said the East Indians bought them as fast as he could get them from the United States. Canadian manufacturers should be able to supply such ploughs to the East Indians, or perhaps persuade them to buy a little better plough.

A GREAT DEMAND FOR TOOLS AND HAND IMPLEMENTS.

There is a great demand throughout the British West Indies for all kinds of tools and hand implements such as forks, cutlasses, knives, hoes, shovels, axes, hatchets, etc. Millions of them are used, as nearly all the agricultural work is done by hand implements. The large estates employing indentured labourers supply the forks, cutlasses, etc., which are necessary for their work. Every peasant land holder has hand implements of his own and many of the independent labourers. There must be such implements for every agricultural labourer. Nowhere else is the demand for such implements greater per head of population, and if Canadian tool manufacturers could get control of the market it would mean a really great trade.

This is a case in which only the best will do. A man must have good tools to do good work, and he very quickly discovers whether they are good or not. If a Canadian tool manufacturer thinks of competing for the West Indian tool trade he should get samples of the tools used and make sure that he can turn out as good an implement. If poor implements are sent down from Canada there will be no second sales. After making sure that the tool is as good as can be made, the next question is whether

it can be manufactured in Canada at low enough cost to compete with the British and American tools. The demand is so great that it is surely worth while to try. Nearly every house has a hatchet and a hammer. Most of the hatchets and some of the hammers are supplied by American manufacturers. There is a good sale for axes, but more hatchets are sold. Throughout the British West Indies one kind of file is in demand. It is an American file. The forks and cutlasses are chiefly of British manufacture; very few are bought in the United States. Shovels are imported extensively from the United States as well as from the United Kingdom.

I have the prices at which most of the tools and implements used in the British West Indies are sold to the merchants—the prices which they pay f.o.b. New York or f.o.b. Southampton, or Liverpool, England, and can furnish them to any Canadian manufacturer who may be interested.

At one time the British manufacturers supplied everything but gradually American manufacturers are getting a foothold, supplying shovels, spades, hoes, hatchets, hammers and files in large quantities. They have not yet been able to make any headway against the British manufacturer in supplying the market with forks, cutlasses and knives. Rakes are not very extensively used in the British West Indies.

American manufacturers have one decided advantage—the freight rates are very much lower from New York than from English ports. Canadian manufacturers shipping from St. John or Halifax have the same advantage over British manufacturers.

Forks are usually packed in bundles covered with canvas, while shovels, spades and hoes are packed in barrels and cutlasses in cases, usually five dozen in a case.

APPLIANCES FOR RUBBER TAPPING AND COLLECTION.

If an extensive area of British Guiana should be devoted to Para rubber trees as seems probable there will be an immense demand for knives for tapping rubber trees and cups for catching rubber. The Hills estate on the Mazaruni river will eventually have 15,000 acres in rubber. At sixty-five trees to the acre, which is a low average, there would be about a million rubber trees on that one estate. In Ceylon a great variety of knives are used for tapping rubber trees, special merits being claimed for each. Some of the Ceylon knives have been patented but not all of them. I bought samples of tapping knives used in British Guiana. They could easily be made by any tool manufacturer. I also bought samples of the cups used for catching the rubber as it comes from the tree. Glass cups are quite generally employed for the purpose, but sometimes aluminum cups are used. The aluminum cup will not break so easily as the glass cup either in transportation or in usage on the plantations, and this is a very important point. Many millions of rubber catching cups and tapping knives are almost certain to be required in British Guiana and a considerable number in Trinidad, Tobago, Dominica and St. Lucia. It will probably be three or four years before any great number of trees are old enough for tapping; it may be six or seven years. In the meantime the demand for tapping knives and rubber catching cups will not be great, but if Canadian manufacturers wish to have that trade they should begin to supply the market now. They should endeavour to be the first in the field. There will be little profit in the business at first, while the demand is small, but there may be great profits when rubber is flowing from millions of trees in British Guiana and the British West Indian Islands. I can give information about the different kinds of tapping knives used in Ceylon to any Canadian manufacturer who may be interested. In British Guiana the collecting cups are emptied into small round plates made of aluminum. Thin cakes or mats of rubber are thus moulded. These aluminum plates could be made in Canada. It is important that the rubber should be dried quickly and on some estates a drying apparatus is used. I am unable to give any information about this drying apparatus, but this is something that Canadian manufacturers might supply also.

The greatest factor in the economy of raw rubber production after the trees are ready for tapping is the cost of the labour of collecting and emptying the cups at

many trees. It has been suggested that if some device could be invented that would carry the fluid rubber from a large number of trees to a common collecting centre, a great saving in the cost of collection might be effected. As to whether this would be practical or not, I am unable to express an opinion. One difficulty would be the tendency of the fluid rubber to congregate soon after it comes from the tree.

RUBBER MANUFACTURED GOODS.

It is a curious fact that while raw rubber is a product of the tropics, manufactured rubber deteriorates much more quickly in the tropics than it does in the northern zone. The result is that many classes of rubber goods give out so quickly that substitutes for rubber goods are often used when they will serve the same purpose.

In Georgetown, British Guiana, the manager of a job printing office said that he had great trouble with printing ink in that climate for a long time, but when he explained the difficulty to the British manufacturer who supplied him with printing ink he added some chemical that very greatly improved it. He would not tell what the chemical was. He said that was a secret. Possibly some chemical might be added in manufacturing rubber that would make manufactured rubber goods stand the climate better, but only a rubber expert would be competent to express an opinion as to whether this would be practicable.

DEMAND FOR CORRUGATED IRON SHEETS.

There is an immense demand throughout the British West Indies for galvanized iron sheets, both corrugated and plain. The corrugated iron sheets are used almost universally for roofing in the country and quite extensively in the towns for fences.

On the estates not only the houses of the managers but all the barracks are roofed with corrugated iron. While some of the peasants have huts with thatched roofs, those that are able to build houses of a little better class often have them roofed with corrugated iron sheets. They stand the climate and protect against heavy tropical rains better than any other roofing.

The corrugated iron sheets are imported chiefly from the United Kingdom but to some extent from the United States. The American sheets are a little lighter than the British. Here again the freight rates favour Canadians and Americans.

GALVANIZED IRON BUCKETS.

There is a very large demand for galvanized iron buckets. They are used for a great variety of purposes and many peasants have several of them. In some of the towns and villages every householder is compelled to have galvanized buckets for the disposal of night soil which must be emptied every night.

MANY WIRE NAILS REQUIRED.

The British West Indies use large quantities of wire nails and Canada is already supplying them to a considerable extent. This is a business that will probably grow.

LARGE SALES OF CANADIAN CORDAGE.

There are large sales of Canadian cordage in the British West Indies. The demand for rope and cord on the various estates and in the homes of over two million people is quite extensive. Wrapping twines, sewing twines for cacao and sugar bags and fishing twines are largely supplied by Great Britain.

CANADIAN PAINTS ARE POPULAR.

A Halifax paint manufacturer has built up a profitable paint business in all the British West Indian colonies that have joined in the Preferential Agreement.

The success of Canadian cordage, paints and nails in competition with British and American lines should be an incentive to other Canadian manufacturers to push trade in those colonies.

CANADA AND THE BRITISH WEST INDIES

CANADIAN BROOMS AND BRUSHES SELL WELL.

A large trade in Canadian brooms was also developed, but in Trinidad and British Guiana it was said that this trade was hampered by an increase in freight rates. The shutting out of cheap German and Austrian brushes is likely to increase the sale of Canadian brushes which are already getting a hold in the West Indies.

LOCKS AND BOLTS.

Locks and bolts are of course in general demand. They are imported chiefly from the United Kingdom and the United States. The American articles are making headway, but Germany and France supplied part of the demand before the war began. Scales are classed with locks in the statistics of some of the colonies and are imported largely from the United States as well as from the United Kingdom.

LAMPS AND LANTERNS.

Almost every house has a lantern and a large proportion of the houses have lamps. They are imported largely from the United States. Canada might well compete for this trade.

HARNESS FOR DONKEYS AND MULES.

There are a great number of donkeys and mules in all of the British West Indian colonies. The harness is sometimes made locally, but most of it is imported from the United Kingdom. It goes without saying that it is a cheap harness. It could be easily manufactured in Canada.

CHAINS FOR DONKEY CARTS.

For hitching the donkey or mule to the cart a combination of iron chain and rope is used, about half the length being chain and the other half rope. I was unable to ascertain why chain is required for half the length when rope is used for the other half. "Just custom," I was told. Whatever the reason for the combination, an immense number of these short iron chains and short ropes are used. Canada might supply them.

THE DEMAND FOR CARRIAGES.

Occasionally a peasant farmer has a horse and carriage as well as a donkey and cart, but not very often. Of course every large estate has horses and carriages. Carriages and wagons are imported chiefly from the United States, but a considerable number come from the United Kingdom. Quite a number are made by local carriage and wagon builders in the different colonies. Some of the estates employ their own wagon builders, who use chiefly native wood in construction. Wagon and carriage hardware is imported chiefly from the United States, but to a large extent from the United Kingdom.

MOTOR CARS TAKING THE PLACE OF CARRIAGES.

The motor car is taking the place of the horse and carriage to a great extent on the large estates. In Trinidad, British Guiana, Barbados and Jamaica there are already a large number in use. Every estate of any importance will have one in a few years. In the Leeward and Windward Islands a few are already in use.

Owners of lime estates in Dominica are making such great profits now that there would be a large number of motor cars in that island if there were good roads, but the roads are outrageously bad. Canadian manufacturers of motor cars should watch the good roads movement in that island and take note that under the energetic administration of Hon. Edward Drayton there is certain to be a great improvement in roads before long.

In Georgetown, British Guiana, when I asked a carriage dealer if there would be a good market for Canadian carriages there, he took me to a carriage house where there were a great number of carriages and cabs. "I bought them in the United States," he said. "They are second-hand but they are good as new and had hardly been used at all as their owners had discarded them for motor cars. I thought I had a bargain and would make money selling them here, but I was mistaken. I can't sell them because the motor car craze has taken hold in British Guiana, and the people who can afford to keep carriages want motor cars."

BICYCLES AND TRICYCLES.

I was surprised to see the number of black and coloured boys on bicycles. Last year in British Guiana, Trinidad and Barbados, the three largest colonies within the Preferential Agreement, the value of importations of bicycles and tricycles without motors was over \$27,600, while the value of motor bicycles and tricycles imported was over \$4,450. Large quantities of parts were also imported.

CANADIAN LUMBER.

"The reason why large quantities of Canadian white pine and spruce are sold in these colonies is that the people recognize that certain kinds of woodwork must wear out just as clothes wear out, and they are more ready to buy cheap clothing that wears out quickly than expensive clothing that lasts a long time," said a British Guiana merchant. "Our own native woods are more durable. They stand the climate better; they resist the attacks of white ants as spruce and white pine will not, but we can bring the white pine and the spruce all the way from Canada cheaper than we can get the hardwoods out of our own forests. But there are many purposes for which we must have wood that is more lasting. Even for such purposes we often find that it is cheaper to import pitch pine from the Southern States than to use our native woods."

If a great number of the same kind of trees grew together in the tropics there would probably be very little sale for Canadian lumber in the British West Indies. The forests of Trinidad, Dominica, St. Lucia, and British Guiana would be able to supply the demand. So many different kinds of trees grow together and there are so few of one kind to the acre that it is difficult to get large quantities from any one place. The cost of transporting the timber from the forests to the centres of population and the seaports is greater than the cost of transportation by water all the way from Canada or the Southern States. It is probable that this cost of local transportation would have been greatly reduced long ago if native trees of the same kind grew together in large numbers for it would then have seemed worth while to invest capital in providing transportation facilities.

The Trinidad Government policy of making plantations of forest trees of one kind if followed by the Governments of the other colonies may revolutionize conditions in course of time, but it will take from twenty-five to fifty years to bring about important results, and in the meantime many millions of feet of Canadian lumber will be sold in those colonies.

DOUGLAS FIR.

A question of very great importance to Canada and the British West Indies is whether the Douglas fir of British Columbia can take the place of the pitch pine of the Southern States. The opening of the Panama canal greatly shortens the distance between Canada's Pacific province and the British West Indies.

A number of lumber dealers in each of the colonies were asked their opinion about this, and they all agreed in saying that they would buy British Columbia lumber in preference to that of the Southern States if convinced that it would stand the climate as well and resist the attacks of ants.

In Jamaica a large lumber dealer said: "I believe Douglas fir will serve every purpose that pitch pine serves in this colony. I have seen the wood and it looks all

right to me, but in order to convince the people here who are accustomed to buying pitch pine it will be necessary to show them that Douglas fir will stand the climate. I would suggest that the British Columbia lumbermen should arrange with some one to build a house of Douglas fir in a central situation where every one could see it. Let the house be well designed to present an attractive appearance and show off the wood to advantage, and let the people see how well it will stand the climate."

British Guiana and Trinidad in their trade statistics do not classify the different kinds of timber imported, so that it is impossible to judge from them what quantities of pitch pine, white pine, and spruce respectively were imported, but it may be stated that the imports from the United States were nearly all pitch pine and the imports from Canada white pine and spruce. British Guiana imported 2,780,060 feet of undressed lumber last year, of which 1,464,087 feet was from Canada and 1,313,601 feet from the United States. British Guiana's imports of dressed lumber amounted to 63,751 feet, of which the United States supplied 39,672 feet and Canada 24,079 feet. There were 4,747 packages of shooks imported, of which the United States supplied 4,292 and Canada 455. The staves and headings imported numbered 759,571, of which 35,810 came from the United Kingdom and the remainder from the United States. Nearly all were of white oak.

Trinidad imported 4,759,948 feet of undressed timber, of which 3,577,226 feet was from the United States and 1,077,529 feet from Canada. Trinidad's importations of dressed timber amounted to 2,007,243 feet, of which 1,942,498 feet came from the United States and 269,244 feet from Canada. Evidently as regards timber, Canada does better in British Guiana than in Trinidad and there would seem to be room for an expansion of Canadian timber exports to Trinidad.

Barbados gives more detailed information about the kinds of timber imported. From Canada that island imported 5,446,675 feet of beech, birch, hemlock, spruce and white pine. From the United States it imported 317,807 feet of such timber. The total quantity of pitch pine imported was 2,795,546 feet, of which 2,726,331 feet were from the United States. Barbados also bought 19,297,641 shingles from Canada and 536,000 wallaba shingles from British Guiana. The staves and shooks imported numbered 2,141,834 packages, of which 2,089,520 packages came from the United States and 34,314 packages from Canada, but it appears that 22,778 packages from the United States enjoyed the preferential rate, so they must have been Canadian shingles.

The Windward Islands imported 1,185,767 feet of white pine and spruce, of which 1,164,367 feet was from Canada. The Windward Islands imported 1,315,877 feet of pitch pine, of which 1,306,797 feet was imported directly from the United States and the remainder was probably imported indirectly from the United States.

The details of timber imports of some of the Leeward Islands for last year are not available, but the previous year they imported 1,686,279 feet of white pine and spruce, of which 691,189 feet came from Canada, 39,469 feet from Danish ports and 943,544 feet from the United Kingdom. The Leeward Islands are the only colony that get any considerable quantity of white pine and spruce anywhere except from Canada.

Jamaica imported 2,341,365 feet of white pine and 12,313,596 feet of pitch pine, the white pine being supplied chiefly by Canada and the pitch pine by the United States.

It is evident that Canada practically monopolizes the West Indian market for the white pine and spruce, while the Southern States have the monopoly in pitch pine. If British Columbia Douglas fir can compete with pitch pine from the Southern States, Canada may yet supply practically all the lumber that the British West Indies import.

An American business man located in Kingston, Jamaica, said: "A great deal of the pitch pine imported here from the Southern States is very defective. We would not use it in the United States; you would not use it in Canada. It is used in Jamaica because there is nothing to compete with it. I would like to see your British Columbia Douglas fir coming in here."

Pitch pine from the Southern States is largely delivered in the British West Indies by the Seeborg line of steamers. The Gulf and Mississippi ports from which pitch pine is usually shipped lie much to the west of the Atlantic ocean and have not as great an advantage of distance in the transportation of lumber to the colonies that have joined in the Preferential Agreement as might be supposed at first thought. I secured particulars regarding freight rates on pitch pine from southern ports, but do not know to what extent they may be affected by the war which has since broken out.

LARGE QUANTITIES OF MATCHES USED.

British Guiana has a large match factory, but it imported 3,586,680 boxes of matches last year, of which the United Kingdom supplied 1,695,480 boxes, Denmark 907,200 boxes, Norway 572,400 boxes and Sweden 411,600.

Trinidad imported 6,242,160 boxes but the countries from which they are imported are not given in the trade statistics of the island.

Barbados imported 2,007,840 boxes of matches, of which 1,302,480 boxes were from the United Kingdom, 626,040 boxes from the United States, and a few from other countries.

Windward Islands imported last year 2,739,360 boxes of matches, of which 1,000,000 came from Sweden, 906,720 from the United Kingdom, 89,400 from the United States, and a few from other countries.

The details are not available for some of the Leeward Islands for last year, but the previous year the imports amounted to 1,948,080 boxes, of which 1,468,920 boxes came from the United Kingdom, 400,560 boxes from Denmark, and small quantities from other countries.

Thus the colonies within the Preferential Agreement import annually over 16,500,000 boxes of matches.

Jamaica imported last year 5,861,280 boxes of matches. Imports into Jamaica for the last five years have averaged 4,021,800 boxes annually.

THE DEMAND FOR FURNITURE.

In proportion to population the demand for furniture is not large. There is almost no furniture in the homes of the majority of the indentured coolies and a large proportion of the blacks, but as the condition of the masses of the people is steadily improving, the demand for furniture is increasing. However, a great deal of the furniture required is made in local factories or in the homes. There is not a really well equipped furniture factory in the British West Indies, but there are several factories in Trinidad and British Guiana where considerable quantities of furniture are made. In all the colonies there are local furniture makers. The Scotch foreman of a furniture factory where a number of black men are employed said in reference to their work: "They are just as skilful as the average Scotch mechanic, but not so reliable. They do not take the same pride in turning out perfect work."

Native woods are chiefly used in making furniture and some of them are very beautiful. One difficulty is that the woods are seldom properly cured and are consequently apt to split. Nearly all the office furniture is locally made of native woods. Merchants say that office furniture made of the native woods resists the ants better than imported furniture. This home-made office furniture although made of such fine woods does not as a rule compare favourably in general appearance with Canadian office furniture.

There is a large demand for imported chairs; especially the cheaper classes of chairs, but to some extent for all chairs that are not upholstered. Rocking chairs are popular. I was told that the reason why chairs were so much more largely imported than other classes of furniture was that they were moved about so frequently that the

CANADA AND THE BRITISH WEST INDIES

ants had no chance to destroy them. Any article of furniture that is being constantly moved is less likely to be destroyed by ants than stationary furniture. It may be noted that the better class of houses all have wide verandahs which are very much used, and there are always chairs on the verandahs.

METAL FURNITURE.

There is a good and increasing demand for metal bedsteads. The same class of metal bedsteads as are used in Canada sell fairly well in the West Indies, especially the cheaper lines, but English four-post bedsteads suitable for mosquito netting are more generally used. A Trinidad merchant said: "Spring mattresses have a good sale. They are usually made with double wooden ends attached by screws which can be tightened as the springs stretch from use." Other metal furniture might be manufactured for the tropics. Tables and stands so made that a wooden top could be easily fitted might sell well. The wooden top could be made in Canada as well as the metal framework. If the wood gave out it could be easily replaced by another top imported from Canada or a top locally made. Only an expert could say whether such metal furniture could be made cheaply enough.

WIRE FENCING.

Large quantities of wire fencing are used both on the large estates and on small properties. Nearly every East Indian rice grower in British Guiana fences his little plot of land. Barbed wire is quite extensively used for fencing.

AERATED WATERS.

The imports of ginger ale, ginger beer and the various aerated waters are not large because there are a great number of aerated water factories in the West Indian colonies. Small quantities of the better class of mineral waters are imported.

DRUGGISTS AND CHEMISTS.

Druggists and chemists are numerous. They are usually coloured men. They seem to be doing a good business. The sales of patent medicines and toilet preparations are large. It may be noted that drug stores are not kept open in the evenings and on Sundays as they are in Canada, but doctors make up their own prescriptions to a far greater extent than in Canada.

LARGE QUANTITIES OF SOAP USED.

Most of the colonies classify their imports of soap as "common" and "fancy." Trinidad classifies as "perfumed" and "not perfumed." Trinidad imported 3,864,000 pounds of the not perfumed soap 3,778,518 pounds was imported from the United Kingdom, 46,868 pounds from Canada, 6,124 pounds from the United States. Kingdom, 46,868 pounds from Canada, 6,124 pounds from the United States. 4,080 pounds from Holland and trifling quantities from other countries, while of the perfumed soap 53,220 pounds came from the United Kingdom and 28,753 pounds from the United States, trifling quantities coming from other countries. British Guiana imported 2,400,917 pounds of common soap and 58,934 pounds of fancy soap. Of the common soap the United Kingdom supplied 2,394,847 pounds, and Holland 5,600 pounds. The United Kingdom supplied 42,231 pounds of the fancy soap and the United States 10,325 pounds.

Barbados imported 2,407,257 pounds of common soap and 50,270 pounds of fancy soap. Of the common soap 2,403,876 pounds were imported from the United Kingdom

2,400 pounds from Germany and 681 pounds from the United States. Of the fancy soap the United Kingdom supplied 43,892 pounds and the United States 6,370 pounds, trifling quantities coming from other countries. Barbados re-exported 834,594 pounds of soap.

The Windward Islands imported 951,649 pounds of common soap and a few hundred pounds of fancy soap. The United Kingdom supplied 685,406 pounds of common soap, Canada 150,293 pounds and the United States 31,516 pounds, while the remainder came from Barbados and Trinidad, being re-exports from those countries.

The Leeward Islands statistics for last year are not complete but the previous year they imported 617,776 pounds of soap, of which the United Kingdom supplied 373,168 pounds, Canada 43,489 pounds, the United States 18,818 pounds and the balance was imported from Trinidad and Barbados.

Jamaica imported last year 5,056,711 pounds of soap, but in the report of the Customs Department now available there are no details as to the countries of origin or the classification.

It will be noted that in the colonies included in the Preferential Agreement the United Kingdom supplied nearly all the soap imported. In common soap Canada ranked next to the United Kingdom and very much ahead of the United States. In fancy soaps the United States did better than in common soaps, but its sales were very small.

Evidently Canadian soap is beginning to get a foothold in the British West Indies, and our exports may be expected to increase from year to year if the sales are pushed.

FERTILIZERS EXTENSIVELY USED.

Fertilizers are quite extensively used by many owners of large estates in the British West Indies and the Imperial Department of Agriculture is encouraging the peasant farmers to use them. The various local departments of Agriculture are always ready to analyse soils and advise as to what fertilizers they require.

From what is noted in the different colonies by planters and Agricultural Department experts it would seem that there is a growing belief in the value of sulphate of ammonia as a fertilizer, and it may be noted that large quantities of sulphate of ammonia are produced in Canada as a by-product in the manufacture of coke at the iron and steel plants.

British Guiana imported last year 14,111 tons of chemical manures valued at \$626,491 and 837 tons of other manures valued at \$5,255. Of the chemical manures the United Kingdom supplied 13,425 tons valued at \$596,405. Canada supplied 150 tons valued at \$10,500, the United States 177 tons valued at \$10,202, and Holland 150 tons valued at \$5,500. As to the nature of the chemical manures the customs report gives no particulars, but it was said that British Guiana's manure imports are usually chiefly sulphate of ammonia, although nitrate of soda is also imported. Prof. Harrison, the Director of the British Guiana Department of Science and Agriculture, stated that under the present system of agriculture in British Guiana probably from 25 to 30 per cent of the potash, and 45 per cent of the phosphoric acid are returned to the soil by the tops and dry leaves of the sugar cane. He says the soil is exceptionally rich in potash, the soil constituent most easily exhausted in growing sugar cane, but soils that have been growing sugar cane for generations require nitrogen which is supplied in the form of either sulphate of ammonia or nitrate of soda.

The customs report of Trinidad does not give the quantities of manures imported, but states that chemical manures were imported to the value of £22,123 and other manures to the value of £65. Of the chemical manures the imports from the United Kingdom were valued at £18,949, and the imports from the United States at £655. Very small quantities came from a number of other countries. The imports from Germany were valued at £83.

A few months before the war broke out a German chemical company manufacturing fertilizers began a campaign in Trinidad that might have greatly increased the imports from Germany if peace had prevailed. The plan of operation was to say to owners of plantations: "Set aside a small portion of your land for an experiment with our fertilizers. We will supply the fertilizers for this experiment free of charge. All we ask is that you give them a fair test, selecting two plots of land side by side of equal fertility, using our fertilizer on one and no fertilizer on the other, cultivating the same crops on the two plots, giving them equal care and reporting the results to us."

The Barbados customs report goes more into details as regards the different kinds of manures imported than either British Guiana or Trinidad. Following are the details:—

Manures.	Country of Origin.	Quantity.	Value.
		Tons.	£
Sulphate of ammonia	United Kingdom	1,077	17,239
"	Canada	2,992	46,752
Nitrate of soda	United Kingdom	338	4,369
"	Germany	49	640
Raw manures	West Indies	4,032	4,032
Guano	United Kingdom	50	500
Dried blood	"		220
"	United States		75
			73,857

It will be noted that Canada supplied sulphate of ammonia to the value of £46,752 or \$224,409.60.

Barbados re-exported to other West Indian colonies 283½ tons of sulphate of ammonia, 108 tons of nitrate of soda, and 647½ tons of other manures.

The Windward Islands imported chemical manures to the value of \$62,266.80 and other manures to the value of \$9,734.62. Of the chemical manures the value of imports from the United Kingdom was \$41,563.20, and the value of imports from the United States \$7,308.48, the balance coming chiefly from Barbados, being re-exports from that colony.

The customs report of the Leeward Islands for last year has not yet been published, but the report for the previous year showed manure imports valued at \$61,862.40, of which \$42,772.40 represented imports from the United Kingdom, \$9,840 imports from Barbados, \$9,072 imports from the United States, while Canada's share was \$139.20.

Manure imports into Jamaica for last year are not given in the statistical report now available, but the year before chemical manures to the value of \$34,972.80 were imported, of which \$28,737.60 was the value of imports from the United Kingdom, \$2,068.80 the value of imports from the United States, and \$4,152, the value of imports from Germany.

British Guiana, Trinidad and Barbados which have a combined population a little less than that of Jamaica, imported chemical manures to the value of \$1,092,449.60, besides considerable quantities of other manures last year.

THE SALE OF PLEASURE BOATS.

The question has been asked whether there would be any sale in the British West Indies for Canadian motor boats, yachts and other pleasure boats. There are very few pleasure boats in the British West Indies, yet there are quite a large number of

people rich enough to buy them. They are not likely to order them spontaneously, but possibly an active canvasser with a good motor boat or a yacht might be able to get a number of orders.

At Kingston, Jamaica, the harbour is large and well protected and offers unexcelled facilities for all kinds of boating, but very few pleasure boats are to be seen. At Port Antonio and several other seaports there are also good natural facilities for pleasure boating.

At Port-of-Spain the Gulf of Paria would furnish fine water for motor boats or yachts. It is seldom rough. In British Guiana there are so many large and beautiful rivers that there would be great opportunities for pleasure boating. At Georgetown the Demerara river is very wide. The beautiful harbour of Castries, St. Lucia, would be admirable for pleasure boating and the harbour at St. George's, Grenada, is also excellent for that purpose although not so suitable for the accommodation of large steamships. At St. John's, Antigua, although the water in the lovely little harbour is not deep enough for large steamships it would be all right for pleasure boats. At the other islands there are not good harbours for pleasure boats, but at all the islands there could be boating on the sea when weather conditions are favourable.

There is no twilight in the tropics, night coming down a little after six o'clock in the evening. But the moonlight nights are finer for boating than any we have in Canada.

It may be noted that in the cities and towns all business houses close promptly at 4 p.m., so that there is time for a little boating before night comes.

In building motor boats for the West Indies care should be taken to provide protection against the sun.

A number of rowboats and some sailing vessels are built in the West Indian colonies, but they are chiefly for business purposes. All the boats used for lighterage at the different islands are constructed by local boat builders. A black man whom I saw building a rowboat in the island of St. Vincent said that he used native wood for the part below the water line and Canadian spruce for the upper part. "The spruce will wear out first," he said, "but I will replace it."

MUSICAL INSTRUMENTS.

The demand for musical instruments in the British West Indies is not very great. The blacks are naturally musical, but most of them have had no musical training and the masses of the people cannot afford expensive musical instruments. The statistical reports of most of the colonies do not classify the different kinds of musical instruments but include all together under one heading. Imports of musical instruments into British Guiana were valued at \$14,999, imports into Trinidad at \$30,206, Barbados, \$24,926, and Windward Islands, \$9,847. The complete returns for the Leeward Islands are not yet published for last year, but the previous year they amounted in value to \$6,024. Thus the imports of musical instruments of the colonies that have joined in the Preferential Agreement were not much below \$100,000 in value. The imports of musical instruments into Jamaica for last year are not given in the latest statistical report available, but they amounted in value to \$2,690 the year before.

The United Kingdom supplied most of the musical instruments, but the imports of American musical instruments into the preferential colonies were valued at \$18,758.40. Germany supplied a number of instruments but less than the United States.

In making pianos and organs for the West Indies it must be remembered that in the tropics ants will attack them as readily as they will furniture.

COAL FOR BUNKERING.

It can be easily understood that the consumption of coal in a tropical country where fuel is not required for heat and where there are very few factories is not great in proportion to population, but there is one purpose for which considerable quantities

of coal are used and that is the bunkering of steamers. The three most important coaling ports of the British West Indies are Castries, St. Lucia, Port of Spain, Trinidad, and Bridgetown, Barbados. For bunkering purposes alone Castries used 117,532 tons of coal last year. The total imports of coal into Barbados were 79,502 tons, while Trinidad imported 104,417 tons, British Guiana, 29,676 tons, and the Windward and Leeward Islands small quantities. Jamaica's total imports of coal amounted to a little over 51,745 tons.

The whole of Castries' coal supply came from the United States. Trinidad got 90,480 tons from the United States and 13,935 tons from the United Kingdom, while Barbados imported 73,888 tons from the United States and 5,604 tons from the United Kingdom.

There seems to be no good reason why Canada should not supply the coal used in the British West Indies for bunkering. That the coal of Cape Breton is well suited for bunkering purposes is proven by the fact that a great number of steamers call at Cape Breton ports to bunker.

In Barbados it was said that the facilities for bunkering were not good and that if a Canadian coal company would provide facilities for quickly bunkering vessels it might get the coal business.

In addition to coal the British West Indies import from the United Kingdom small quantities of patent fuel.

OIL FOR LIGHT AND FUEL.

Considerable quantities of petroleum are imported into the British West Indies, but it is doubtful whether under present conditions Canada could compete with the United States in supplying oil. If Trinidad's expectations are realized that island will soon be able to supply all the requirements of the British West Indies.

CANDLES.

Over 500,000 pounds of candles are imported into the preferential colonies annually, of which about 100,000 are specified in the trade returns as tallow candles and the others are not always specified, but are usually sperm. The United Kingdom supplied about 85 per cent of the tallow candles and about three-fifths of the other candles. The United States supplied about one-sixth of the tallow candles last year and a little over one-tenth of the other candles. Germany sent 48,457 pounds of candles to Trinidad last year and the British East Indies supplied 24,484 pounds. Jamaica imports a little over 15,000 pounds of tallow candles and over 45,000 pounds of other candles, the tallow candles coming from the United States and nearly all the other candles from the United Kingdom.

BAGS AND SACKS FOR PRODUCE.

Great quantities of bags and sacks are required for various kinds of produce. They are imported chiefly from the British East Indies, although the United Kingdom supplies a considerable quantity and a few are imported from the United States.

WRAPPING PAPER AND PAPER BAGS.

Large quantities of wrapping paper and paper bags are required. Canada should be able to supply a considerable proportion of the demand. A cheap straw wrapping paper is imported from Scandinavian countries.

NEWS PAPER.

There are newspapers with good circulations in Georgetown, Port-of-Spain, Bridgetown, Barbados and Kingston, Jamaica. Canadian manufacturers of news print paper should note that the newspaper men of these colonies attach special importance to the colour of the paper. They like a white paper.

ORDINARY STATIONERY.

Where there is a difference in size between American and English paper for stationery it would be well to note that the people of the British West Indies are accustomed to English sizes.

MACHINERY FOR SUGAR FACTORIES.

Whether Canadian machinery manufacturers could compete with British manufacturers in supplying machinery for sugar factories is a question for experts to decide. The factories of British Guiana and Trinidad are now well equipped with modern machinery, but machinery wears out and new equipment will be required from time to time. St. Kitts and Antigua both have modern sugar factories equipped with the best machinery, but another factory is likely to be built in each of these islands. In Barbados there are likely to be improvements made in machinery in a number of factories.

MINING MACHINERY.

When British Guiana obtains its much-talked of railway running to the Brazilian frontier with branch lines to the mining districts, there will probably be a large demand for mining machinery. At present the expense of taking in mining machinery is too great.

EQUIPMENT FOR OIL WELLS AND REFINERIES.

In Trinidad active measures are being taken to investigate the oil resources of the island. If expectations are realized equipment will be required for many oil wells and for refineries. There is a possibility of such equipment being required in Barbados also, although no active measures are being taken to investigate what experts consider promising indications of oil.

ANHYDROUS AMMONIA FOR ICE PLANTS.

In Port-of-Spain, Trinidad, Georgetown, British Guiana, Bridgetown, Barbados, and Kingston, Jamaica, there are large ice-making plants. Port-of-Spain has two large plants. In nearly all the smaller islands there are small ice-making plants. All of them require anhydrous ammonia for the manufacture of ice, and Canada might supply it.

CALCIUM CARBIDE.

Large quantities of calcium carbide are imported into the British West Indies and Canada already supplies a considerable part of the demand.

EACH BUSINESS HAS ITS OWN EXPERTS.

Each line of business has its own experts. A leading commission merchant of Trinidad who has travellers throughout the West Indies and has been exceedingly successful in getting business for the Canadian manufacturers whom he represents said: "We always like to have any house we represent send an expert down to study conditions in his line of trade. It is a great advantage to have some one at the Canadian factory who thoroughly understands what is wanted. We can talk matters over with him here and then by a personal investigation he can acquire knowledge of the class of goods required that we could never give him in a letter. It helps us to make sales afterwards."

In this report my aim is to make Canadian manufacturers thoroughly acquainted with the general conditions in the British West Indies. There are many points that only an expert in each line of business can decide.

KNOWLEDGE OF LOCAL CONDITIONS.

Mere tables of imports and exports are of comparatively little value unless the exporter has a knowledge of local conditions.

To make a success of the export business the manufacturer or merchant must have an understanding of the character of the people, the climate, the physical characteristics and the productions of each country. The remaining chapters of this report will be devoted to giving such information about the British West Indies.

Chapter VII.

THE FUTURE POPULATION.

In the early days of settlement in Western Canada when the population was very small and widely scattered and the cost of transportation high many Canadian manufacturers and merchants thought it worth while to devote a great deal of attention to the western market and they afterward reaped a great reward.

Even in 1901, sixteen years after the western provinces had been connected with the eastern provinces by the Canadian Pacific Railway, the population of Manitoba, Saskatchewan and Alberta was only 419,492. No one doubted then that the trade of the prairie provinces was worth while. At the census of 1911 the three provinces had a population of 1,322,709.

According to the census of 1911 in the British West Indies the population of the colonies which joined in the Canada-West Indies Preferential Trade Agreement was as follows:—

British Guiana..	296,041
Trinidad..	323,552
Barbados..	171,983
Grenada..	66,750
St. Vincent..	41,877
St. Lucia..	48,637
Dominica..	33,863
Montserrat..	12,196
Antigua, Barbuda and Redonda..	32,369
St. Kitts-Nevis and Anguilla..	43,303
Virgin Islands..	5,557
	1,086,028

The population in 1911 of the colonies that have not yet joined in the Canadian Preferential Trade Agreement was:—

Jamaica..	331,383
Turks and Caicos Islands..	5,608
Cayman Islands..	5,564
Bahamas..	55,944
British Honduras in 1905..	40,372
	938,871

Thus the total population of the colonies now known as the British West Indies was over two millions in 1911 when the population of the Canadian provinces of Manitoba, Saskatchewan and Alberta was 1,322,709.

The only one of the British West India colonies that can be said to have reached its limit of development is Barbados which with an area of 166½ square miles had a population of over 1,032 per square mile in 1911. Even in Barbados the wealth producing capacity may be increased to some extent and the island has actually sustained a larger population than it has today for the last previous census showed a population of 182,306. It is a saying throughout the West Indies that the Panama Canal was built by Barbadians, and the emigration to the canal zone considerably reduced the population.

If all the British West Indies had as large a population per square mile as Barbados the population of the colonies which have joined in the Canada-West Indies Preferential Agreement would be 99,641,308, the areas being as follows:—

	Area Square miles.
British Guiana	99,277.00
Trinidad and Tobago	1,974.50
Barbados	166.50
Grenada	133.00
St. Vincent	150.30
St. Lucia	233.29
Dominica	294.66
Montserrat	32.50
Antigua, Barbados and Nevis	170.83
St. Kitts	152.00
Virgin Islands	50.00
	99,641.38

With the same population per square mile as Barbados the colonies that have not yet joined the Canada-West Indies Preferential Agreement would have over 17,130,000, the areas being as follows:—

	Area Square miles.
Jamaica	4,450.25
Turks and Caicos	169.00
Cayman Islands	
Bahamas	4,424.00
British Honduras	7,562.00
	16,605.25

The exact area of the Cayman Islands could not be ascertained so it is not included, but the islands being small are not important.

Thus without including the Cayman Islands the British West India colonies have a total area of over 110,240 square miles and if they were as densely populated as Barbados is today would have a population of 113,777,978.

It is certain that the British West Indies as a whole will never be as densely populated as Barbados, but if their resources were fully developed they could sustain many millions and I shall show in describing these colonies separately that if we except the Bahamas, Turks, Caicos, Cayman and Virgin Islands, a considerable part of which is barren, a large proportion of the areas included in the British West Indies is capable of being made highly productive.

British Guiana is larger than the Province of Agra in British India which with an area of 83,100 sq. miles had 34,624,000 inhabitants in 1911. The Province of Oudh with an area of only 24,158 sq. miles had a population of 12,558,004 in 1911, while the Province of Punjab with an area of 99,779 square miles had a population of 19,974,956.

If we go to the Dutch East Indies we find that Java and Madura with a total area of 50,544 square miles, little more than half the area of British Guiana, had a population of 30,098,008.

If British Guiana were as densely populated as the Province of Agra in British India its population would be 37,645,500; with the same number per square mile as Oudh it would be 46,944,040; with the same number to the square mile as Java, 53,714,800.

In the present undeveloped state of British Guiana it is impossible to predict what its population may be when fully developed, but enough is known to say with certainty that it is capable of supporting millions of people.

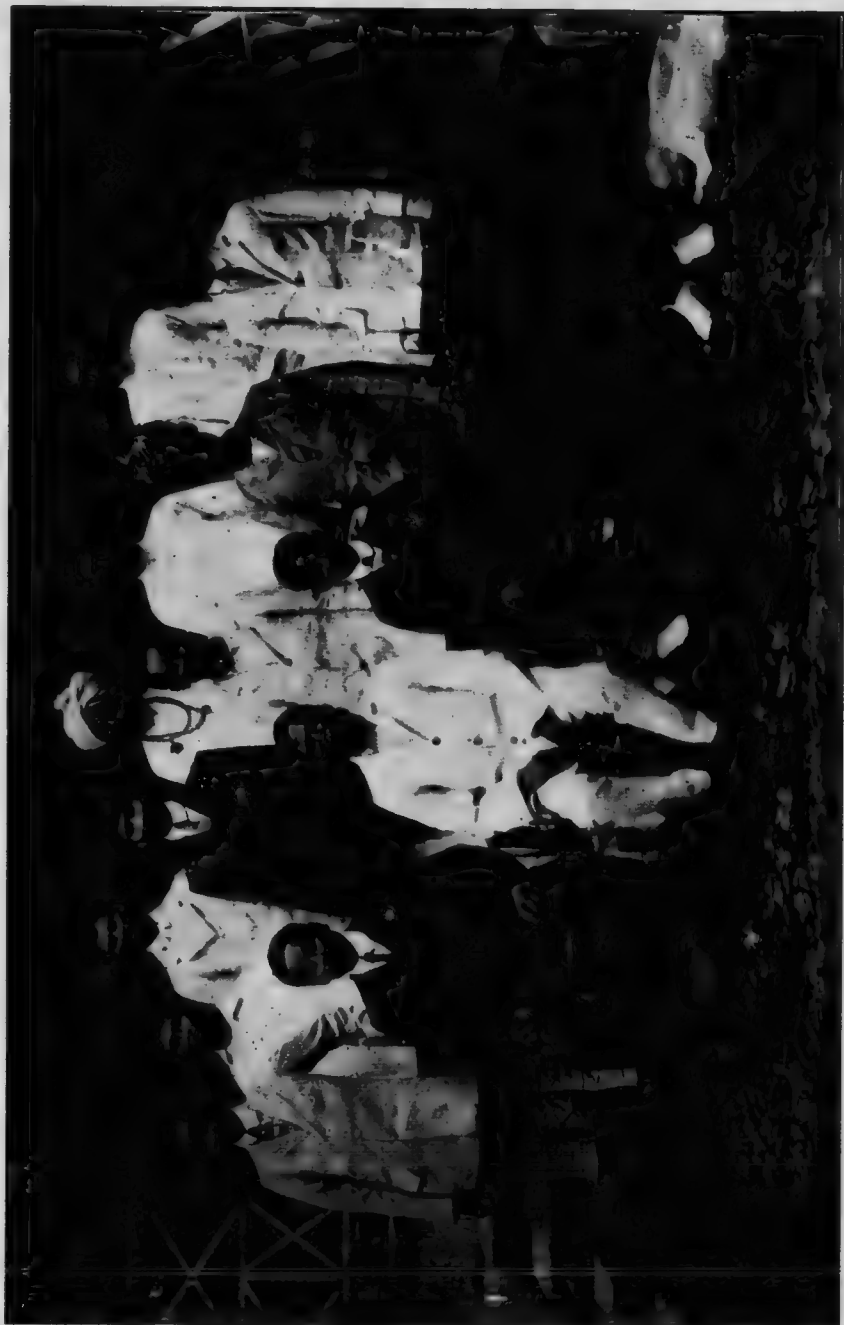
It may be said, "If British Guiana is capable of supporting as many people as Java or even one-tenth the population of Java why is it that after so many years this old colony has only about 300,000 people settled along a narrow fringe of the coastlands?"

Only a few years ago many people were equally pessimistic about Canada. Why was it, they asked, if Canada's vast territory was capable of supporting a large population so little of it had been developed, while the United States alongside was growing apace. How many pages of British magazines did that great master of style, Goldwin Smith, fill with articles intended to prove that Canada could never have more than a fringe of settlement along the northern boundary of the United States! No one thinks of Canada in that way now. Yet even now this Dominion is only at the beginning of its development.

Trinidad's capabilities are better known than those of British Guiana. This beautiful and fertile island could certainly support as many people to the square mile as Java and perhaps as many as Barbados.

All the products that are grown in the tropical countries of the East Indies can be grown to perfection in the West Indies. The soil of the West Indies is generally remarkably fertile and the climate is superior to that of the East. I met in the British West Indies a number of men who had lived in India and Ceylon. They all agreed that the climate of the British West Indies, being tempered by constant Trade Winds, was far better than that of the East Indies.

In comparing the British West Indies with countries of the east it is not intended to give the impression that they are likely in the near future to have a great population but it is evident that they are capable of supporting a large population and there is already a steady stream of emigration from India to Trinidad and British Guiana.



A Trinidad East Indian merchant and his staff of East Indian clerks.

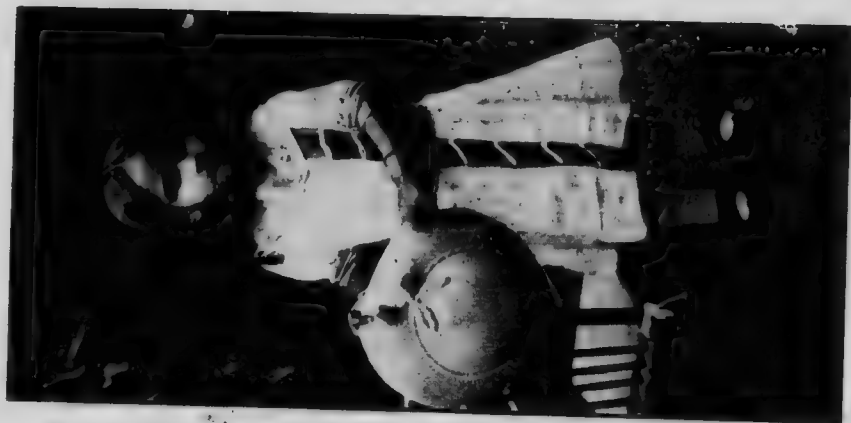


A wealthy Trinidad East Indian and his family.

A Trinidad East Indian merchant and his staff of East Indian clerks.



East Indian women in Trinidad.



East Indian children attending Canadian Mission schools in Trinidad.



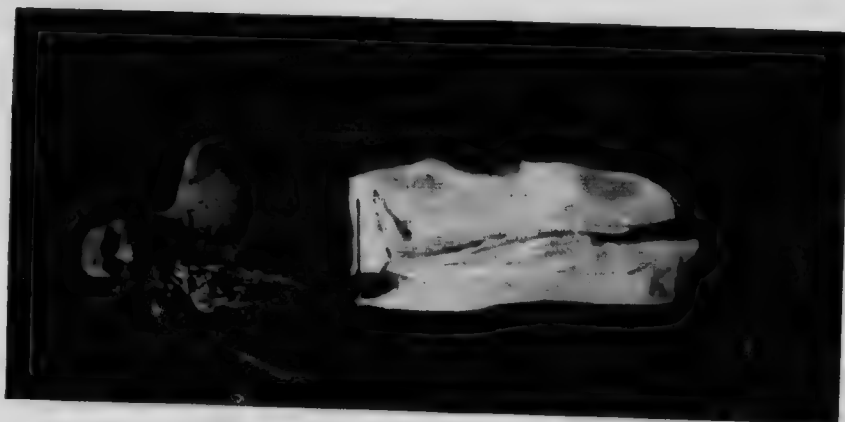
East Indian Boys' Brigade, Canadian Mission Schools, Trinidad.



An Afghan in British Guiana.



An East Indian family in British Guiana.



A new arrival from India.

Chapter VIII.

EAST INDIANS IN THE WEST INDIES.

When Columbus first landed on a British West India island he thought he had reached India. It is a remarkable coincidence that for some years past the increase of population in British Guiana and Trinidad has been almost entirely due to immigration from India and many leading business men predict that the great majority of the population will eventually be of East Indian origin not only in those two colonies but also in most of the Windward and Leeward Islands.

At the census of 1911 with a total population of 296,041 British Guiana had 126,517 of East Indian origin. Of these, 66,668 were born in the colony of East Indian parentage and 59,849 were born in India. Trinidad with a total population of 333,552 had 108,603 of East Indian origin, of whom 58,021 were born in the colony of East Indian parentage and 50,555 were born in India. Whether born in the colony or in India they are called East Indians.

The native born population of East Indian parentage would be much larger if there were more East Indian women in these colonies, but as men are more useful as labourers on the estates than women it has been the policy to bring out more men than women. In 1911 there were only 73 women for every 100 men in the East Indian population of British Guiana, but this is an improvement over former conditions. At the previous census there were only 630 women for 1,000 men and in earlier years the proportion of women was much smaller. In Trinidad at one time there were about three times as many men as women among the East Indians, but conditions have gradually improved. In 1901 there were 878 women for 1,000 men and in 1911 the proportion was 913 women for 1,000 men. Thus Trinidad is in advance of British Guiana in this respect.

Among the people of African descent and those of mixed white and African descent the women are much more numerous than the men and an effort has been made to correct the balance by bringing about unions between East Indian men and negro women, but race prejudice has proved too strong and with very few exceptions they do not mix. The children born from the few unions that have occurred are not included in the official figures of the East Indian population. In the island of St. Lucia where there was no East Indian immigration between 1901 and 1911 the surplus of births over deaths was so great that the pure East Indian population actually increased from 1,214 to 1,864, nearly 53 per cent. In St. Lucia there have been a considerable number of marriages between East Indian men and coloured and black women. In 1911 there were 210 children resulting from these unions.

Nearly all the East Indian immigrants are indentured labourers brought out by the Governments of the West Indian colonies under contract to work on the sugar and cacao estates for five years at a minimum wage of a shilling per day. The colonial government pays the passage of the immigrants from the East to the West and guarantees that each estate employing them shall provide free barrack accommodation, a commodious hospital and good medical treatment when they are ill. They are required to remain in the colony for five years after the period of indenture expires being free to work for whom they please or to take up land, and after ten years' residence in the colony they are entitled to have their passage to India paid by the colonial Government if they desire to return.

Evidently such inducements can only attract the poorest class of people in India. Considering this fact the general success of the East Indians in Trinidad and British Guiana is most remarkable.

A HANDSOME RACE.

Everyone who has seen large numbers of these people must be impressed with the regularity and refinement of their features. If a crowd of ten thousand white people of the lower classes in any country of the world were compared with an equal number of East Indians in Trinidad or British Guiana I venture to say that the East Indian crowd would have at least as large a proportion of men and women with fine features. There are many shades of colour, some of them being as dark as negroes, others comparatively fair, but the skin is always of fine texture. They are of slight, delicate build, with small hands and feet. The women are very lithe and graceful and have modest manners. They show good taste in dress even when wearing the simple garb of their native country which is very picturesque.

WONDERFUL THRIFT.

Out of their meagre earnings these people save money. They send money to relatives in India and those who return to their native land carry surprisingly large amounts with them in money and jewellery. For instance last year 759 East Indians including men, women and children returned to India from British Guiana. They carried with them \$39,860.69 in money and jewellery valued at \$6,644.28.

The East Indians who remain in the colony have a considerable amount of money in the Government savings bank besides their investments in land, cattle, sheep and goats. Last year there were 8,214 East Indian depositors in the post office savings bank of British Guiana with deposits amounting to \$500,644. The East Indians owned land in British Guiana assessed at \$972,758, while they had 13,384 cattle and 3,022 sheep and goats, besides a large number of donkeys.

When it is remembered that these people came to the colony with absolutely nothing, that they earn only from 24 cents to 40 cents per day, probably averaging little more than a shilling a day, and that in many cases they have sent money to relatives in India the showing is wonderful.

In Trinidad the number of East Indian deposits in the Government savings bank is even greater than in British Guiana. There were 10,871 depositors last year and the amount to their credit was \$637,800. The amount remitted to India through the post office in the last ten years was \$161,494.76.

PROSPERING AS LAND OWNERS.

But the most gratifying evidence of the material progress of the East Indians in Trinidad is the fact that the number who own land is steadily increasing. A considerable proportion of the East Indians save enough during the period of indenture to buy land. The East Indian usually buys a plot of five acres of forest land from the Government, paying twelve dollars per acre. While they are clearing the land of forest and preparing it for cultivation they work on sugar and cacao estates for about four days of the week, devoting the remainder of their time to the improvement of their little properties. They commonly plant cacao or coconut trees. It usually takes about five or six years for these trees to come into bearing. In the meantime the land between the trees is utilized in growing a variety of vegetables which in the parlance of these islands are called ground provisions. When the trees are in full bearing the settler is independent. I asked one man who had only an acre and a half of land in cacao and coconuts how much he got from it. He said his crop varied a little from year to year but on the average he sold his cacao and coconuts for about \$170 per year and had besides enough ground provisions for his family. If this much can be realized from an acre and a half the ordinary settler's farm of five acres will yield its owner a very comfortable living. An East Indian who can save money while working on an estate at a shilling per day will be "passing rich" when his little estate yields him "forty pounds a year".

The policy of encouraging the settlement of East Indians on small estates of their own is comparatively new and while they have planted many thousands of cacao, coconut and fruit trees only a small proportion of the trees have as yet reached the productive stage.

INCREASING THEIR COMFORTS.

However both among the immigrants and the native born East Indians there are a considerable number who have cacao estates with trees in full bearing. Many of them are increasing their acreage. As they grow more prosperous they continue to save money, but nevertheless their expenditures increase. The indentured immigrants on the estates live in barracks which to a Canadian visitor seem sadly lacking in the comforts of life. They have no furniture. They sit on the bare floor. The life seems little better than that of the lower animals, but in one respect it is altogether different. The houses are scrupulously clean and the people take great pains in keeping their bodies clean. Little children are bathed daily by their mothers. The first houses built on the little properties purchased by them are as lacking in the comforts of life as the barracks, but as their condition improves they begin to furnish their homes and to dress more expensively although seldom extravagantly. I have seen some exceedingly comfortable and even beautiful East Indian homes in Trinidad.

It requires capital to develop even such small properties as those owned by the majority of the East Indians. To build houses, clear forests, plant cacao, coconut or fruit trees takes money as well as time. In order to hasten the development of their properties many of the East Indians borrow money. They usually pay extraordinarily high rates of interest, but nevertheless they seldom lose their properties through failure to pay the interest and principal when due. When they have improved their properties and paid off the mortgages they are more ready to spend money on the comforts of life. In a few years their purchasing power will be very much greater than it is today.

The great ambition of almost every East Indian is to own a little land and have a home of his own.

I talked with a number of managers of estates employing East Indians in both Trinidad and British Guiana. They all agreed that these immigrants from the East were the best agricultural labourers obtainable.

OFTEN FAIL AS MERCHANTS.

Some of the East Indians have invested their savings in mercantile enterprises, but the East Indian is not so successful as a merchant as he is in agricultural labour or in farming land of his own. There have been a number of failures among East Indian merchants and in many cases the small stores which were started by East Indians in the little villages of Trinidad and British Guiana are now in the hands of Chinamen or Portuguese. There are exceptions, however, and a few of the East Indian merchants have been very successful.

THE CANADIAN MISSION.

It is an interesting fact that nearly all the East Indian children in Trinidad are being educated under Canadian auspices. A number of years ago the Canadian Presbyterian Church established a mission among the East Indians in Trinidad. At that time there was no provision for the education of the children of the East Indian immigrants. The Canadian Mission started schools for them and there are now Canadian Mission schools and churches in every East Indian settlement.

It would be out of place in a commercial report to discuss the religious aspect of this Canadian missionary work, but from a commercial point of view it is interesting to know that the Canadian men and women who have devoted their lives to this work have paved the way for increased Canadian trade by to a great extent

revolutionizing the habits, home life and dress of many of these people. It must not be supposed that the missionaries try to alter the dress of the East Indians but it is noteworthy that a considerable proportion of the Christianized East Indians have adopted the Western style of dress.

When the children attending the Canadian Mission Schools in Trinidad grow up the education they are receiving cannot fail to have an important influence upon the life of the colony.

The Canadian Mission has also extended its work to British Guiana, but it has not yet grown as strong there as in Trinidad and its influence is not so widely felt.

INDIA'S ANNUAL INCREASE.

In considering the progress made in the British West Indies by East Indians of the poorest classes one cannot help wondering what would be the result if East Indians of a better class—men of sufficient means to develop from ten to twenty acres of land—could be induced to emigrate to these colonies. In British Guiana they could probably get free grants from the Government on condition that they put the land under cultivation within a reasonable time.

The British Provinces of India increased in population 12,001,000 during the ten years between 1901 and 1911. They did not need that increase. If an emigration equal to even a small proportion of this annual increase of over 1,200,000 could be directed to the British West Indies under proper regulations for placing the people on the land how quickly the resources of these colonies would be developed and how wonderfully their trade would expand.

There are many reasons why the settlement of East Indians in Canada cannot be encouraged, but whereas the climate and other conditions in Canada are unsuitable for the East Indians, the climate and general conditions in the British West Indies are admirably suited to them.

SETTLERS FROM AFGHANISTAN.

Among the East Indians in British Guiana are a few Afghans. These Afghan immigrants are usually remarkably handsome, and they may be classed as white men for their complexions are quite fair. In conversation with one of them I remarked that the Afghans I had seen were much fairer than the East Indians. He replied: "The people of Afghanistan are a white race. We are in fact Israelites, being descendants of one of the sons of Jacob. This has been the universal tradition and belief of Afghans from generation to generation."

Chapter IX.

THE BLACK AND COLOURED RACES.

In Canada and the United States the name "coloured people" is applied indiscriminately to all who have negro blood whether pure or mixed with white blood, but in the British West Indies it is used only in reference to those who are evidently of mixed white and negro blood. In the census returns of most of the colonies as well as in common parlance the people are divided into four classes—whites, coloured or mixed, blacks and East Indians.

British Guiana besides those of East Indian origin had at the last census 6,001 aborigines, 2,622 Chinese, 115,438 blacks, 30,251 mixed or coloured and 14,021 whites. In Trinidad, the Windward Islands and the Virgin Islands the census returns make no race distinction except in the case of East Indians and those of East Indian parentage. In Barbados according to the census of 1911 there were 12,063 whites, 41,533 of mixed colour, and 118,387 blacks. Dominica, Montserrat, Antigua and St. Kitts-Nevis had together 3,116 whites, 25,542 of mixed colour and 92,975 blacks. Jamaica had 15,605 whites, 163,201 coloured, 630,181 blacks, 17,380 East Indians and 2,111 Chinese besides a few others not specified.

The flying visitor to the British West Indies, whether a tourist or a commercial traveller, does not see the best of the coloured and black population. He walks or drives through the streets and perhaps has time to take a short run into the country. He has no opportunity to really investigate the condition of the people. He notices that the great majority of them are barefooted. He sees many idlers in the streets and on the wharves.

As I was going into a business house in Dominica a small boy hurried forward, opened the door for me and said as I passed in: "I'll take a penny for my kindness, sir."

The visitor is constantly beset by men and boys who press their services upon him and usually want a good deal more than a penny for their kindness. If he happens to talk to a planter he may learn how difficult it is to get black men to work more than three or four days per week. He is apt to carry away the impression that the black population are nearly all loafers and buy so little that the trade of the British West Indies is not worth the trouble it takes to get it. I have heard many expressions of opinion to this effect from Canadians who have made hurried visits to the West Indies.

But there is a better side. In Barbados, the Windward Islands and the Leeward Islands where nearly all the labourers are black or coloured the exports of domestic products amount in value to about \$8,300,000 annually. In addition to these exports the labourers grow considerable quantities of fruit and vegetables for their own consumption. It is evident that they must do a considerable amount of work in the course of a year.

It has been noted that Barbadian labour is said to have built the Panama Canal, but Barbados is not the only island that sent black labourers to the Canal zone. Considerable numbers went from the Windward and Leeward Islands. While travelling from island to island I heard many stories of men who had returned from the Canal zone, bringing with them money enough to buy a little land and of men who had sent money home to relatives to buy land. Last year the Barbadians working in the Canal zone sent home money orders to the amount of \$316,516. Men who can satisfactorily perform the arduous labour required in the construction of the world's greatest canal and who have sufficient love for the home folks to send that amount in money orders to relatives in one year certainly cannot be classed as loafers.

Barbadians employed in the United States also sent home considerable amounts. The post office money orders sent from the United States to Barbados last year amounted in value to \$63,628.

The number of depositors in the Barbados Savings Bank on the 31st day of March, 1914, was 20,572, and the amount to their credit was \$2,042,630. There were 37,255 depositors in the Government Savings Bank of Jamaica and the amount to their credit last year on the 31st of March, was \$1,521,000. The statistics do not distinguish between white and black depositors, but as the percentage of white people is very small in both Barbados and Jamaica and nearly all the planters and merchants have accounts in the Royal Bank of Canada, the Bank of Nova Scotia, or the Colonial Bank it is evident that a very large proportion of the Savings Bank depositors must be black or coloured.

The general writing of letters is usually regarded as an indication of the intelligence of the people. In Jamaica last year 9,400,277 letters and 946,002 postcards were mailed. The Barbados post office handled 2,008,450 letters and 160,801 postcards. It should be noted that the Barbadians live on an island only 21 miles long and 14 miles across at its widest part. A large proportion of them own donkeys and carts. All of them frequently visit Bridgetown and have opportunities of meeting each other. Thus the necessity of writing letters is not so great as in a vast country like Canada where relatives and friends are often separated by wide distances.

Considering the general poverty of the people the percentage of the black and coloured population of the British West Indies who can read is large. Among the younger people very few are unable to read. In Jamaica, where over 95 per cent. of the people are black or coloured, the number enrolled at the elementary schools alone is over 100,000 and there are a large number attending the higher schools. At the census of 1911 the number who could read in Jamaica was 446,778 in a total population of 831,383, a considerable proportion of whom were grown up when the present system of education was adopted.

There is no compulsory education law in Barbados yet there were enrolled at the primary schools last year over 28,000 pupils besides a considerable number at the higher schools.

There are 280 friendly societies in Barbados established for the purpose of raising funds for the relief of members and their families in time of sickness and death. These societies had 42,850 members whose families entitled to participate in benefits numbered 110,458. Whatever may be said of those friendly societies the fact that so large a proportion of the population have joined them and regularly pay the fees to continue membership seems to indicate that the negro race is not so improvident as it has been described to be.

Barbados is one of the most densely populated countries in the world, yet the black and coloured people everywhere look well fed, happy and cheerful.

I was told by the manager of the Trinidad Electric Railway, an enterprise controlled by Canadian capital, that nearly all their employees were black men. In the workshops where cars are repaired and sometimes almost completely reconstructed black mechanics are employed. He spoke very favourably of their work and said he found them as intelligent as white workmen.

In British Guiana the gold and diamond miners, the lumbermen and those who go into the forest to bleed balata trees are nearly all black men. They like this life of adventure and speculation better than working on plantations. They receive somewhat higher wages for such work than for agricultural labour, which is another inducement. At the shipping ports nearly all the labourers are blacks. They are better paid than agricultural labourers, but in the smaller island they cannot find constant employment in loading and unloading ships, and some of them work on plantations in the neighbourhood when there is no demand for their labour in the towns. The carpenters and builders, blacksmiths and other mechanics employed both in the towns and on the plantations are usually black or coloured as are also the great majority of shoemakers, shoe menders, watch and clock repairers.

The black men are said to despise agricultural labour because they associate it with the old slavery days. In Trinidad and British Guiana probably less than twenty per cent. of the labourers on plantations are blacks. But the East Indians have not the muscular strength necessary for digging ditches in competition with black men. At such work a black man may earn more than twice as much in a day as an East Indian when paid by the piece.

The great majority of the clerks both in the retail stores and wholesale houses of all the colonies are coloured. There are a larger number of white clerks in Barbados and British Guiana than in any of the other colonies.

In the Leeward and Windward Islands a considerable proportion of the successful merchants are coloured and quite a number of coloured men are owners of large estates.

The majority of the lawyers and doctors are coloured men and many of them have been educated at English universities. I have found in conversation with some of them that they are remarkably intelligent and well informed.

Principals of schools and colleges in the different colonies have told me that their coloured and black pupils show as much intelligence and diligence as the white pupils and in many cases take the prizes.

While nearly all the East Indians are said to save money the black man has the reputation of spending all he earns, yet it is evident from the statistics of postoffice savings banks, postoffice money orders and land purchased that this is not altogether true.

Efforts to settle black men on the land as peasant proprietors have not been very successful in British Guiana and only moderately so in Trinidad, but in some of the islands, and notably in Grenada and St. Vincent Government subdivisions of land among the black peasantry have been remarkably successful as will be shown in the next chapter of this report.

The report of the West India Royal Commission of 1897 made the following comparison between the negro and the East Indian labourers:—

"The negro is an efficient labourer especially when he receives good wages. He is disinclined to continue labour extending over a long period of time and he is often unwilling to work if the wages offered are low though there may be no prospect of his getting higher wages from any other employer. He is fond of display, open-handed, careless as to the future, ordinarily good humoured and excitable and difficult to manage, especially in large numbers when his temper is aroused. The East Indian immigrant, ordinarily known as the coolie, is not so strong a workman, but he is a steadier and more reliable labourer. He is economical in his habits, is fond of saving money, and will turn his hand to anything by which he can improve his position."

With reference to peasant proprietors the Commissioners said: "It seems to us that no reform affords so good a prospect for the permanent welfare in the future of the West Indies as the settlement of the labouring population on the land as small peasant proprietors; and in many places this is the only means by which the population can in future be supported. But whilst we think that the Governments of the different colonies should exert themselves in the direction of facilitating the settlement of the labouring population on the land we see no objection to the system of large estates when they can be maintained under natural economic conditions. On the contrary we are convinced that in many places they afford the best and sometimes the only profitable means of cultivating certain products and that it is not impossible for the two systems of large estates and peasant holdings to exist side by side with mutual advantage."



A group of Trinidad barristers.



Black women going to market in Jamaica.

Chapter X.

SUCCESSFUL PEASANT PROPRIETORSHIP.

For information regarding the land settlement schemes in Grenada, Carriacou and Union Island I am indebted to Mr. G. Whitfield Smith, Commissioner of Carriacou, Mr. Walter Bertrand, Land Officer, Grenada, and Mr. Gilbert Auchinleck, formerly Superintendent of Agriculture in Grenada, whom I met on a steamer bound for Mauritius where he has taken a position in the Agricultural department. Mr. Auchinleck's statement regarding the success of these settlements and the great improvement that has taken place in the material and moral condition of the people was fully confirmed by Hon. Francis Watts, Commissioner of the Imperial Department of Agriculture, Hon. Herbert Ferguson, Treasurer of Grenada, and Hon. Edward Drayton, formerly Colonial Secretary of Grenada and now Administrator of Dominica, to whose organizing ability the success of the settlements in Grenada and St. Vincent is in large measure due. I supplemented the information obtained from these sources by an examination of the tax rolls of Grenada containing 8,597 names with the acreage owned by each.

Following is a summary of the various classes of holdings in Grenada and Carriacou, the owners of which pay land taxes:—

Under 2 acres.. . . .	4,970
Under 3 acres.. . . .	1,212
Under 5 acres.. . . .	1,136
Under 10 acres.. . . .	682
Under 20 acres.. . . .	251
Under 100 acres.. . . .	209
100 acres and over.. . . .	137
Total land owners.. . . .	8,597

The present system of encouraging the settlement of peasants on land in Grenada is based on a plan devised for the Island of Carriacou by Hon. Edward Drayton which proved remarkably successful. Carriacou is a dependency of Grenada about 20 miles to the north of this island and has an area of about 13 square miles.

In 1903 the Government of Grenada, acting on the suggestion of Hon. Edward Drayton, decided to inaugurate a system of peasant proprietorship in Carriacou and in May of that year an estate of 709 acres was acquired for subdivision. Other purchases followed as the success of the experiment was demonstrated until 1,435 acres had been acquired and the greater part of it sold in small allotments to peasants. In allotting land those who could pay cash were given first choice in order to attract a desirable class of settlers who would be an example to the others, but as the great majority of those whom the plan of settlement was designed to benefit had no money they were allowed to make payment in twelve annual instalments with interest at the rate of 5 per cent.

THE MONEY PAID BACK.

Ten years after the sale of lots began the peasant purchasers had paid the government £8,587, while the entire cost of the 1,435 acres of land with interest and other expenses connected with the subdivision amounted at that time to £8,449. While more than the amount invested by the Government had been returned within ten years there still remained at that time £600 to be paid by the allottees which I understand was afterward paid. An additional estate of 488 acres purchased at a later date than the 1,435 acres referred to is being sold in small allotments in the

Black women going to market in Jamaica.

same way, but is not included in this calculation. Not a single case has as yet occurred where the purchaser has forfeited his land through inability to pay instalments of purchase money and interest. Prices varying from £2 to £15 per acre according to the location and character of the land were paid by the settlers.

One of the conditions of purchase was that no allottee could sell, alienate or mortgage his holdings for a period of twelve years from the date of allotment without the consent of the governor. This clause has contributed greatly to the success of the settlement scheme, for in all the British West Indian colonies it has been found that blacks who acquire land are very ready to mortgage it at high rates of interest and in many cases it soon passes out of their hands. In Grenada before the present policy of government subdivisions was adopted some of the large estates had been subdivided by their owners for sale to peasants and a large proportion of these allotments are said to be under mortgage.

In Trinidad it is so generally recognized that the black peasants owning land are ready to mortgage it that an official handbook issued by the Board of Agriculture for the purpose of encouraging the settlement of Englishmen with capital, after explaining the terms on which forest land can be acquired from the government and how it may be improved, says: "Another method of forming a cacao estate is to purchase a block of cultivation surrounded by those of a number of small peasant proprietors and gradually to acquire the latter by purchase. Many large estates in Trinidad have been thus formed from small beginnings, the character of the native peasantry being such as to lend itself to the scheme, especially where the prospective proprietor runs an estate shop on the credit system. As a matter of fact this procedure has been responsible for the amalgamation of several previously independent parcels into one large estate."

CONDITIONS EXISTING BEFORE.

Describing the conditions that led to the adoption of the land settlement project of Carriacou and the change which took place after it went into effect, Mr. Gilbert Auchinleck said: "A number of large estates in Carriacou had abandoned sugar cultivation owing to low prices of sugar. Such cultivation as survived was conducted on a crude system of metayerage. Affairs steadily drifted from bad to worse until the inhabitants were reduced to a deplorable state of destitution and pauperism. Where the land was cultivated at all it was done in the half-hearted manner which betokened the efforts of a people lost to all hope who were apathetically content with such feeble returns as could be extracted from a soil in which they had no interest, part beyond that of satisfying immediate needs.

"With the advent of the land scheme a remarkable change took place. Lands were rapidly taken up, cleared and planted. Agricultural lots were fenced in with barbed wire, the government supplying the wire on easy terms of payment. For years the young and able-bodied male population of the island had been compelled to seek a field of labour in the neighbouring Island of Trinidad and the Venezuelan republic, and a number of them saved money which they deposited in the savings bank of Trinidad. Immediately on the inauguration of the land scheme large portions of these savings were withdrawn and invested at Carriacou, either in the purchase of land or in the erection of neat and substantial cottages on the holdings of their parents.

"The well-kept allotments of these peasants each with its attractive cottage afford an unique object lesson in the possibilities of peasant proprietary settlements when well conducted.

"Not less remarkable has been the moral effect on the people themselves. Court records disclose that the year before the inauguration of the project upwards of 500 cases were brought before the magistrate of the district for hearing. In 1913, ten years afterward, this number had dwindled to about 280 chiefly confined to offences of the most trivial description.

"It has been found at Carriacou that a holding varying in size from 2 to 3 acres is about as much as an unaided peasant can handle."

THE UNION ISLAND SETTLEMENT.

With reference to the Union Island settlement, Mr. Auchinleck said: "Prior to 1910 this island was private property and for many years had been worked as a cotton plantation on the metayer or share system, the conditions of which were even more harassing to the cultivator than those which obtained at Carriacou.

"The inhabitants numbering about 1,500 were at that time herded together into two small villages of squalid wattle and daub huts without the least regard for privacy or sanitation. They were not allowed to keep cattle or to grow provisions except in special localities where the soil was sandy and almost worthless for cultivation. Under such circumstances it is not surprising that the islanders bore an unenviable reputation for lawlessness. In 1910 the Government of St. Vincent purchased the island and inaugurated a peasant land settlement on the lines so successfully adopted in Carriacou. After setting aside 606 acres for first conservation the remainder, about 1,400 acres, was cut up into allotments varying in size from 2 to 5 acres. Nearly all the lots have been taken up, and already the exports of cotton, poultry and small stock from the island have been doubled. The outlook for the land scheme at Union Island is of the most hopeful character. The squalid villages are fast disappearing and on all sides one sees neat and in some cases pretentious structures in course of erection on the lands of allottees. Several provision shops have sprung into existence and the place now wears an air of prosperity where three short years ago squalour and poverty reigned supreme.

"There has always been a misapprehension on the part of the public as to the effect of a policy of land settlement on the labour supply. There seems little doubt that labour will be made more expensive, but it is likely to be more certain and more efficient. In Carriacou and Grenada the labour supply available for the large estates appears to have increased where government settlements have been established without any influx of settlers from other districts. The improvement of the quality of labour may be explained by the realization of a very human trait: a peasant barely subsisting on low labour wages will always be shiftless, unreliable and disinclined to work, but the instant he becomes a land owner and is able to provide himself with good food and comfortable living he seeks labour in order to obtain money for further luxuries. At the same time his absolute dependence on the larger owners is of course greatly lessened. The general effect of a peasant settlement on labour supply may then be summed up by saying that labour is improved in quality and quantity because the peasantry are more independent."

Although Mr. Auchinleck commends the clause in the regulations which prevents the mortgaging of land he thinks that in many cases where settlers are in need of money for improvements some system of advances by the government will have to be adopted.

It is not the policy of the Grenada government to bring about the subdivision of all the large estates. The aim is so far as possible to select for subdivision estates that are not being fully cultivated by their owners. It is thought that the interests of the people will be best conserved by the maintenance of a number of large estates that will give employment to the peasant proprietors of small allotments.

The Imperial Department of Agriculture has from the first exercised a paternal supervision over these settlements, being always ready to give advice to the peasants. Without this direction the settlements would probably have proved failures.

The success of the government settlements in Carriacou, Union Island and Grenada as compared with the failure of many other settlements of the black peasantry in the British West Indies seems to demonstrate that when the mortgaging of lands is prohibited and the work of improving and cultivating them is carefully supervised

by the Department of Agriculture, remarkable success may be achieved, whereas if the peasant proprietors are left entirely to themselves with freedom to mortgage their lands and no direction as to how to cultivate them they are apt to be very shiftless and often lose their property.

ST. VINCENT PEASANT PROPRIETORS.

In addition to Union Island, containing 2,057 acres, the government of St. Vincent has acquired five large estates in different sections of the colony containing a total acreage of 5,060 acres, so that altogether this colony has 7,127 acres for peasant proprietors and most of the subdivisions have been allotted. The government officials think there is no doubt that a great improvement has taken place in the condition of the peasantry and that steady progress is being made.

ST. LUCIA'S EXPERIMENTS.

In St. Lucia, the government acquired two large estates at opposite ends of the island for subdivision. I was told that in one of these subdivisions the peasants had shown remarkable thrift and made their payments regularly, but that the other settlement had proved far less successful, although the conditions of sale were the same.

JAMAICA'S PEASANT PROPRIETORS.

In Jamaica six-sevenths of the land alienated from the Crown is now in the hands of peasant proprietors, and there are nearly 100,000 landowners, most of whom have less than five acres. The government of Jamaica is taking great pains to instruct the peasants in agricultural science, and improvements in methods are steadily being made on many of the small holdings, although in some cases the results are discouraging.

Chapter XI.

THE IMPERIAL DEPARTMENT OF AGRICULTURE.

One of the most important results of the investigations of the West India Royal Commission of 1907 was the establishment of the Imperial Department of Agriculture for the West Indies, which was conducted at first under the direction of Sir Daniel Morris, and in recent years with Hon. Francis Watts as Commissioner, has given valuable assistance to every class of producers in the British West Indies.

The report of the commissioners said: "The botanical establishments in the larger colonies such as Jamaica, Trinidad and British Guiana have already rendered considerable assistance in improving agricultural industries and they are capable of being made increasingly useful in this respect. In the Windward and Leeward islands and Barbados, small establishments called botanic stations were established a few years ago on the advice of the director of Kew Gardens and the results although not yet extensive have been of a distinctly promising character. It is evident that to grapple with the present circumstances there is required for the smaller islands a special public department capable of dealing with all questions connected with economic plants suitable for growth in tropical countries, and we recommend the establishment of such a department under which should be placed the various botanic stations already in existence. These stations should be enlarged in their scope and character and be organized on the lines found so successful in Jamaica. In the latter colony it is admitted that intelligent and progressive action in the direction of encouraging a diversity of industries has produced most satisfactory results. To achieve this result has, however, taken more than twenty years of persistent effort and the government has spent more than £100,000 during that period on its botanical establishments. The department has distributed seeds and plants at nominal prices by means of the post office, government railways, and coastal steam service; it has supplied information orally or by means of bulletins regarding the cultivation of economic plants and has encouraged the careful preparation of the produce by sending agricultural instructors on tour through the island to give lectures, demonstrations and advice. The special department recommended for carrying on similar work in the Windward and Leeward islands should be under the charge of a competent imperial officer whose duty would be to advise the governors in regard to all matters affecting the agricultural development of the islands. He would take part in consultations with the object of improving agricultural teaching in colleges and schools and of training students in agricultural pursuits, and would attend to the preparation of suitable literature on agricultural subjects. The existing botanic stations should be placed under his supervision and the charge of maintaining them transferred to imperial funds. Each botanic station would be actively engaged in the introduction and improvement of economic plants, and in propagating and distributing them throughout the island. It would carry out the experimental cultivation of new plants to serve as an object lesson to cultivators, and it would be prepared to give the latest information to inquirers regarding economic products and to provide suitable men as agricultural instructors. To effect all this will require funds entirely beyond the present resources of the smaller islands. We are, therefore, of opinion that as the necessity for such a department is urgent the cost should be borne by the imperial exchequer. The promising experimental work connected with raising new varieties of canes, and increasing the production of sugar by the use of manures and other means should receive special attention. The chief experiments might be carried on as hitherto by the officers in charge of them in British Guiana, Barbados, and Antigua but continued and extended, if found desirable in Trinidad and Jamaica. In addition the botanic stations in the Leeward and Wind-

ward islands would maintain nurseries for the introduction of all new and promising ones, and would undertake the distributing them within their respective sphere of action. We think that some, at least, of the botanic stations should have agricultural schools attached to them, where the best means of cultivating tropical plants would be taught, and if elementary training in agriculture were made a part of the course of education in the public schools generally the botanic department would be in a position to render valuable assistance."

RECOMMENDATIONS CARRIED OUT.

What the commissioners recommended should be done is being done. The larger colonies have still their own departments of agriculture, but there is generally a spirit of co-operation between them and the Imperial Department of Agriculture which has its headquarters in Barbados.

Two publications are issued regularly by the department, *The Agricultural News*, a popular fortnightly review, and *The West Indian Bulletin*, a quarterly scientific journal. These publications have a very wide circulation throughout the British West Indies. Almost every planter reads them and the better class of peasant proprietors study them carefully.

A successful planter said to me: "The publications of the Imperial Department of Agriculture enable the planters of the British West Indies to help each other by exchanging information about experiments. They minimize our isolation. We know what is being done in the other islands. We learn not only the result of experiments at the botanical stations and on plantations in our own neighbouring colonies, but also in far-away India, Ceylon, Java and even in Africa. We learn how to deal with insect pests and blights that prey upon our plants and trees. We get information as to prevailing prices and the extent to which various tropical products are being grown in other countries."

Hon. Francis Watts and his staff of assistants are making special efforts to educate the small peasant proprietors and improve their methods of cultivation. It is slow work, of course, but steady progress is being made and remarkable results have already been achieved in some cases. There is little doubt that under such teaching the peasants will make more out of their little holdings and their purchasing capacity will increase.

The members of the West Indian Royal Commission of 1897 in questioning witnesses evidently kept constantly in mind the possibility of substituting other industries for sugar growing to some extent at least and they recommended that every effort should be made to encourage the growth of other tropical products. The Imperial Department of Agriculture has paid special attention to this and has already accomplished much in securing a greater diversity of productions.

SEA ISLAND COTTON.

One of the most important achievements of this department is the establishment of a Sea Island cotton industry in Barbados, St. Vincent, St. Lucia, Montserrat, St. Kitts-Nevis, Anguilla, Antigua, Barbuda and the Virgin Islands. Special pains were taken by the Imperial Department of Agriculture in securing seed of first-class quality and large quantities of the seed were distributed not only among the large planters, but also among peasant proprietors, and the officials of the department in each island took the utmost interest in advising and directing planters and peasants in the early experiments. The result was the establishment of a very profitable industry in each of these islands.

Valuable assistance was rendered by the British Cotton Growing Association in making grants of money and machinery, undertaking to find a market for the cotton and sending an expert to the islands to explain in detail the requirements of spinners in regard to uniformity in length of staple, colour and fineness.

A report of the British Cotton Growing Association referring to the Sea Island cotton grown in Barbados, the Windward islands and the Leeward islands, says: "The cotton produced is even superior to that grown on most of the best Sea Island plantations in South Carolina and has realized 2d. to 3d. per pound more than American-grown cotton."

Well equipped cotton-ginning factories have been established to handle the product of all these islands.

GREAT DEMAND FOR YOUNG TREES.

Whether under the direct control of the Imperial Department of Agriculture as is the case in the smaller islands or under the control of the local departments of agriculture in the larger colonies the botanic gardens and the experimental stations attached to them are doing most valuable work in distributing at cost price all kinds of tropical plants and trees. The demand for lime, cacao, coconut and rubber trees is astonishing and no one can see the figures of the number sold annually by the botanic gardens of the different colonies without being impressed with the fact that before many years have passed there must be an extraordinary change in the export statistics of most of these colonies.

All visitors to the British West Indies admire the great beauty of the botanic gardens which are to be seen in every colony, but very few realize the important work for the economic development of these colonies that is being carried on at experimental stations.

Agricultural training schools have been established by the Imperial Department of Agriculture in St. Vincent, St. Lucia and Dominica. They have proved very successful. Agricultural science is also taught at the grammar schools at Antigua and St. Kitts and scholarships have been provided by the Imperial Department of Agriculture. In British Guiana, Trinidad and Barbados small gardens have been established in connection with a large proportion of the common schools and children are given instructions in agriculture.

Agricultural shows are held periodically in the smaller islands and grants of money are made by the Imperial Department of Agriculture in aid of the prize fund. Show day is becoming an annual holiday for the peasants and it is expected that the competitions will stimulate them to improve their methods of cultivation and the preparation of their products for market.

A TRAVELLING ENTOMOLOGIST.

One of the assistants of Hon. Francis Watts is an entomologist who, when necessary, travels from island to island to investigate outbreaks of insect pests and take measures to eradicate them. By correspondence and by articles in the *Agricultural News* the planters are kept constantly informed about the ravages of insect pests and if an outbreak occurs in one island every effort is made to prevent it spreading to the other islands.

Sir Daniel Morris has given a remarkable instance of the value of entomological research. For two hundred years the moth borer was regarded as the most destructive and most widely distributed enemy of the sugar cane. Little was known of the early stages of its growth and the *causes* and how they were deposited had never been observed. Mr. Maxwell-Lefroy, the entomologist of the Imperial Department of Agriculture, succeeded in finding the moth borer eggs deposited in a greenish cluster on the back of the leaf of the sugar cane. They were so inconspicuous that they had escaped the notice of successive generations of planters who had only *realized* the presence of the moth borer by the injury it had done to their canes. Mr. Maxwell-Lefroy also discovered that a minute parasite attacked the eggs and if in addition to collecting the eggs the parasites were encouraged the moth borer might be largely checked by natural means.

A GREAT DISCOVERY.

Perhaps the most remarkable achievement of experimental agriculture in the history of tropical countries is the development of seedling canes as the result of the investigations of Mr. J. R. Bovell, now Superintendent of the Barbados Department of Agriculture, and Prof. J. B. Harrison, now Director of the Department of Science and Agriculture, British Guiana. The experiments were begun in Barbados, being conducted jointly by Mr. Bovell and Mr. Harrison who were able to prove that the theory long held by the authorities on cane growing that the sugar cane never produced fertile seed was inaccurate. After Prof. Harrison went to British Guiana the experiments were continued in both Barbados and British Guiana and resulted in the production of a number of new varieties of cane several of which have proved to be superior to all the old varieties.

The Bourbon cane was almost universally grown in the British West Indies for many years. But some years ago it began to deteriorate and became very liable to disease. It became impossible to grow it in certain soils. Several of the new varieties give very much larger quantities of commercial sugar per acre and as they will grow on land where the Bourbon will not grow and are less liable to disease the benefit to owners of sugar plantations is incalculable. The growing of seedling canes has passed the experimental stage, and throughout the British West Indies seedling canes have largely displaced Bourbon cane with most satisfactory results. As new varieties are constantly being produced if the ones now favoured by planters should deteriorate and become diseased it is probable that other varieties will be developed from time to time to take their places.

Chapter XII.

THE EARNINGS OF THE LABOURERS.

The earnings of the labourers in the British West Indies seem very small compared with those of the poorest class of Canadian labourers, but the conditions of life are very different. The labourer in the West Indies never has to protect himself against cold. The little fuel required for cooking can usually be picked up or cheaply purchased. The houses do not need to be constructed to keep out cold and can therefore be built more cheaply. Clothing is necessary for decency and show but not for protection from cold. Even those labourers who live in villages have usually behind their dwellings a few mango, coconut or breadfruit trees and often bananas and vegetables sufficient for their own consumption. They sometimes get their dwellings free from the estates where they labour and sometimes pay a trifle for rent. The labourers on the estates are allowed to chew as much sugar cane as they please and there is a good deal of nourishment in sugar juice. Thus they can either save a considerable portion of their earnings or spend the money on imported articles. Those who spend immediately everything they earn make better present customers for Canadian exporters, but those who save now will be larger spenders a few years later when their investments in land begin to produce results.

PAID BY THE TASK.

On the estates the labourers are now seldom paid by the day. They are allotted tasks and paid by the task. The aim of the planters has been to make the compensation for a task equivalent to the day's earnings of an average man when employed under the old system of day labour, but at day labour the labourers never exerted themselves overmuch and it has been found that working by the task many of them work harder and accomplish more. Some of them are content to quit work when they finish their task and if they work energetically have very short hours of labour. Others, desirous of making more money, may start work on a new task when one is completed and sometimes even complete two tasks in a day.

The payment for a task varies slightly in different colonies and even in different sections of the same colony, but it may be said that the minimum earnings of men engaged in agricultural labour are 20 cents per day and the maximum 40 cents per day, although in exceptional cases more than 40 cents may be earned. Women and children are employed as well as men. The women have few household duties and a large proportion of them work in the cane fields or cacao and lime plantations for at least a portion of the day.

THE EARNINGS OF CHILDREN.

Children usually go to school, but they work a portion of the day and in busy seasons are often kept away from school. The earnings of children run from 4d. to 8d. per day. A big boy or girl may sometimes earn nearly as much as a man or woman. In Montserrat, Dominica and St. Lucia when limes are used for making juice they are never picked from the trees, but are allowed to fall to the ground, and the work of picking them up from the ground is nearly always done by women and children—sometimes very small children. I have seen children four or five years old helping their mothers pick up limes. Probably these very little children regard the work as play if they do not have to work too long at a time. We all know how tiny white children in Canadian homes often delight in being allowed to help their

mothers with the household tasks. The women are paid for the work by the barrel, and a woman with half a dozen children to help her can pick up a good many limes in a few hours. At such work an active child will do as much as a grown person if the hours of labour are limited as they usually are. Limes keep maturing and dropping to the ground throughout the year. Children can help their mothers before going to school in the morning or after school hours, thus adding considerably to the family earnings.

WOMEN AS COAL CARRIERS.

At Castries, St. Lucia, which is a great coaling station for ships, a large number of black women are constantly employed in unloading and loading coal. They are well paid for this work, and can earn more than the men do in agricultural labour. They carry the coal in baskets on their heads, and their quick, energetic movements would surprise any one who thinks all negroes in the tropics are lazy.

In estimating the earnings of the labouring population of the British West Indies this fact that nearly all the women and a large proportion of the children are employed in outdoor labour for a portion of the time must always be remembered.

THE DOCK LABOURERS.

At Bridgetown, Barbados, Castries, St. Lucia, Port of Spain, Trinidad, Georgetown, British Guiana, Kingston, Jamaica, and Port Antonio, Jamaica, a large number of dock labourers are kept almost constantly employed at wages considerably higher than they could earn on the estates. At the smaller seaport towns, as already stated, employment for dock labourers is very irregular.

ARTICLES MUST BE CHEAP.

Nevertheless while the total earnings per family are larger than would be supposed on first learning the price of labour, they are never great and the people cannot afford to buy very expensive articles.

Chapter XIII.

PRESENT ECONOMIC CONDITIONS.

Any one who has read the voluminous report of the West India Royal Commission of 1907 will know how deplorable was the condition of the sugar industry in those colonies at that time and how large a proportion of the population were dependent upon it. Grenada had almost completely abandoned sugar growing and was producing cacao and spices extensively; Trinidad had also large areas devoted to cacao; Dominica was growing cacao and limes to some extent and Montserrat had its famous lime juice industry, while Jamaica was already producing large quantities of bananas and limited quantities of a variety of other tropical products; but in every one of those islands excepting Grenada the decline of the sugar industry was causing much hardship and distress while in the other British West India islands and British Guiana the sugar industry was almost the only source of income for the agricultural population.

Owing to a variety of causes, but chiefly to the competition of bounty fed beet sugar the price of cane sugar had steadily declined until there was no profit in producing it except for estates most favourably situated.

Many large sugar estates had been completely abandoned. The labourers who had been employed on them were destitute and on the verge of starvation. Some of them were beginning to sink into savagery. In British Guiana most of the sugar estates then in operation had been equipped with the most modern machinery for the manufacture of sugar at minimum cost, but even these were making little profit and the utter extinction of the industry was feared. In those colonies where modern sugar factories had not already been established the future of the sugar industry seemed so hopeless that it was impossible to get any money for improvements.

THE CONDITIONS RADICALLY CHANGED.

The conditions have radically changed. The abolition of the beet sugar bounties as a result of the Brussels convention, the Canadian tariff preference, the discovery of new varieties of sugar cane to take the place of the deteriorating Bourbon cane and the measures taken by the Imperial Department of Agriculture to eradicate the moth borer have all helped to place the sugar industry on a more profitable basis.

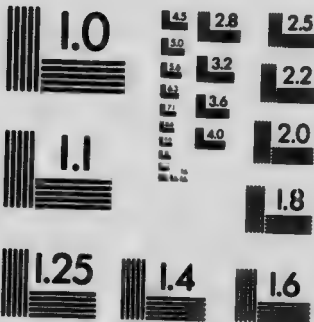
Hon. Francis Watts, Commissioner of the Imperial Department of Agriculture, estimates that the introduction of new varieties of canes has increased the sugar production over wide areas from 10 to 25 per cent. He says that an increase of 10 per cent in the sugar production of Antigua and St. Kitts alone means an addition to the annual wealth production of these two small islands in excess of the whole amount annually expended in the maintenance of the Imperial Department of Agriculture for all the British West Indies. Mr. J. R. Bovell, whose experiments with seedling canes have had such remarkable results, gave an instance of a single estate in Barbados where the increased production of sugar owing to the cultivation of new varieties of sugar cane has added to the profits an amount greater than the total cost of the seedling cane experiments in Barbados since the beginning of the investigations.

There is no likelihood that cane sugar growers will ever again have the great profits they enjoyed in the early days. Beet sugar has come to stay and will keep down the price although it is no longer bounty-fed, but the present competition is not unfair, and moderate profits can be made.



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The improved prospects of the sugar industry have made it possible to secure a certain amount of capital for the installation of modern machinery in old factories or the establishment of central factories which buy cane from both the large plantations and the peasant farmers.

In St. Kitts and Antigua a group of British capitalists have established central factories which handle a large part of the sugar canes grown in these islands, but local sugar cane growers say that if an additional factory were established in each island the sugar production could be greatly increased.

On a steamer on the way from St. Kitts to St. Vincent, I met an American tourist who was largely interested in the sugar industry of the United States and had visited every important sugar factory in that country. He said that although the factory in St. Kitts was not as large as some of the American factories it was fully equal in equipment to any sugar factory of the United States.

In Barbados most of the sugar produced is still muscovado, but on some of the estates the machinery has been modified for the manufacture of sugar crystals in vacuum pans.

CANE FARMING IN TRINIDAD.

In Trinidad the growing of sugar canes by small land-holders is called "cane farming" and the sugar factories on the large estates are depending more and more upon the peasant farmers to supply canes. At sixteen estate factories over one-third of the canes ground were purchased from cane farmers.

It has been found that it is easier to get the black peasants to grow cane on their own little holdings than to labour on the large estates. The canes purchased from the cane farmers cost the factories no more than those grown on their own estates, but the negroes will work harder and longer for themselves and so they earn more than when working on the estates.

In addition to the cane farmers who own small holdings, there are a considerable number who rent land from the large estates for the purpose of growing canes and the owners of estates are very ready to rent land for this purpose.

LAND RENTED TO RICE GROWERS.

In British Guiana cane farming has not become popular, but many of the sugar estates rent land to East Indian coolies for rice growing. This encourages them to remain on the estates after their period of indenture expires, and the greater part of their time is devoted to labour on the sugar estates. In some cases the sugar estates allow the coolies to have land for rice growing for nothing in order to keep them after the indenture period. These small rice growers probably work on the average four days per week for the sugar estates at regular wages. Their little crops of rice add considerably to their earnings.

As the land thus utilized for rice growing is usually not well suited for sugar cane, the area of production has been considerably increased by the development of rice growing.

Many of the East Indian land owners in British Guiana are also growing rice on their small holdings.

MANY TREES PLANTED.

The great number of trees and plants purchased by planters and peasant farmers from the botanic stations in different colonies has already been referred to.

In Dominica last year the agricultural department sold, in addition to 19,000 cane cuttings obtained from Antigua, the following trees and plants grown at the Dominica botanical gardens:

Lime trees.. . . .	59,396
Cacao trees.. . . .	6,677
Coffee trees.. . . .	5,300
Para rubber trees.. . . .	2,156
Budded Washington Naval orange trees.. . . .	139
" grape fruit trees.. . . .	413
" lemon trees.. . . .	39
" tangerine trees.. . . .	10
" spineless lime trees.. . . .	6
Grafted cacao trees.. . . .	62
" mango trees.. . . .	54
Vanilla.. . . .	210
Miscellaneous.. . . .	684
Total.. . . .	75,146

This is one year's record of a single island. For some years past such distribution of economic trees has been in progress throughout the British West Indies, and the fact that the trees distributed are nearly all paid for is evidence of the interest taken by the people in improving their properties. Thus in St. Lucia, where 58,682 lime trees were distributed last year, 54,937 trees were sold, while 1,800 were given free to purchasers of Crown lands.

It takes from five to seven years for cacao, coconut, limes and other fruit trees to come into profitable bearing, although small yields may be obtained a little earlier. The number now in the productive stage is very small compared with the total number planted, but even within two or three years the production of the islands will be greatly increased. The head of the Crown Lands Department in Dominica told me that he could say confidently from his knowledge of the number of trees already planted and about to be planted that the production of limes in Dominica would be ten times as great within ten years as it is to-day.

In Dominica, Montserrat and St. Lucia lime trees are in greatest demand; in Trinidad, Grenada and St. Vincent cacao and coconuts; in British Guiana coconuts, limes, cacao, coffee and Para rubber trees. Barbados, Antigua, St. Kitts, Nevis and the Virgin Islands, being comparatively dry and wind-swept, are not planting as many trees as the other islands. Coconut trees do not require a heavy rainfall, and a considerable number have been planted in Nevis. The plantations, although not yet in the bearing stage, give promise of great success.

In considering the present economic situation in those colonies where trees have been extensively planted it should be noted that the investment of capital in clearing land, preparing it for cultivation and keeping it free from various tropical growths that would obstruct the development of the trees has been quite large. The investors have as yet had almost no return. In many cases they are discouraged with waiting for results.

While I was in Demerara a man seventy years of age who had 10,000 coconut trees which had almost reached the bearing stage was so tired of waiting for nuts that he sold his property for a mere fraction of its intrinsic value. A little syndicate of Georgetown men purchased it and will get their profits when the trees come into bearing.

Long ago coconuts and coffee were more extensively produced in some of the colonies than they are to-day but they were attacked by insect pests and diseases which the planters of that day did not know how to combat. Now there is a wider knowledge of such pests, while the Imperial Department of Agriculture as well as the local departments are always ready to come to the assistance of the planters in their endeavours to destroy insect pests and eradicate diseases.

COTTON GROWING.

The cotton growers unlike those who are waiting for their trees to grow up are getting immediate profits—very handsome profits—and thousands of acres abandoned by their owners when sugar became unprofitable are now devoted to Sea Island cotton.

GENERAL CONDITIONS.

Evidently the general conditions are better now in many ways than they ever were before and they are likely to be still better in the future.

In the days when great fortunes were made in sugar the owners of plantations spent most of the money in England. A larger proportion of the earnings of agriculture now remains in the colonies than at any previous time.

Owing largely to the settlement of peasants on small holdings of their own the masses of the people have more money to spend than formerly and their spending capacity will increase in the future as the trees they have planted come into bearing and as they become better instructed in intensive agriculture through the teaching of the agricultural experts and the example of their neighbours.

Sir Charles Lucas recently said that while the eighteenth century saw the greatness of the West Indies and the nineteenth century their distress, he believed the twentieth century would witness their regeneration.

OWNERS OF LARGE PLANTATIONS.

It will be understood that while special attention has been paid to a description of the conditions of the masses of the people among whom the spending capacity is individually small although comparatively quite large, there are a considerable number of well-to-do people in all these colonies who allowing for difference in climatic conditions live in much the same way as Canadians do.

The owners of the large plantations who live in the colonies are often wealthy. When they are absentees the managers or attorneys who represent them are paid good salaries. Of course the number of large estates is not great. In Barbados there are approximately 321 sugar estates with factories and 54 without factories. In British Guiana where the sugar estates are very much larger and in a number of cases several large estates have been combined there are only about forty great sugar estates. There are in addition a few large estates producing coconuts, cacao, limes or rice and some large rubber plantations are being established, but on the whole it may be said that the ownership of important estates is concentrated in fewer hands than in any other colony. In Trinidad there are approximately 33 large sugar estates, between 800 and 900 good sized cacao estates and about 114 coconut estates besides a great number of small properties owned by peasants. Tobago has about 89 large estates. In Grenada there are 137 estates of 100 acres and over. In Dominica there are about 118 such estates; in St. Kitts there are 67 estates of 100 acres and over; in Montserrat about 42; in Antigua about 124.

I have secured lists of the owners and managers of the estates in the different colonies which I am handing to the Commissioner of Trade and Commerce.

While in some of the islands estates of less than 100 acres have been included in the lists a large proportion of them are much larger, some of them running into thousands of acres.

However, the majority of the well-to-do people of these colonies live in the cities and towns. As the general economic conditions cannot be fully understood until these cities and towns have been described the next chapter of this report will be devoted to them.



Castries, Island of St. Lucia, a great coaling station now garrisoned by Canadian soldiers.



Port-of-Spain, Island of Trinidad.



A typical residential street of Georgetown, British Guiana.



Queen's College, Port-of-Spain, Trinidad.



Bridgetown, Island of Barbados.



A business street, Kingston, Jamaica.



Kingstown, Island of St. Vincent.

Chapter XIV.

THE CITIES AND TOWNS.

The most important towns of the British West Indies are Port of Spain, Trinidad; Georgetown, British Guiana; Kingston, Jamaica; and Bridgetown, Barbados, the population of which at the census of 1911 was as follows:

Port of Spain.....	65,044
Georgetown.....	57,577
Kingston.....	57,379
Bridgetown.....	35,000

Strangers visiting these cities are usually impressed with the handsome public buildings, the fine parks and public gardens, the important business houses and the large number of beautiful homes surrounded by grounds adorned with tropical trees.

THE CITY OF PORT OF SPAIN.

Port of Spain had, according to the census of 1911, only a population of 59,706, but the census report stated that the contiguous suburban village of Peru was about to be annexed, making the population 65,044 as above stated.

Every street in Port of Spain is paved with asphalt with a first-class sewer system underneath. These well-paved streets are kept scrupulously clean by frequent sweeping and washing. Workmen are always engaged keeping them in good repair. A plentiful supply of good water is brought to the city in pipes, the reservoirs being fed by mountain streams.

The greatest pains is taken to keep every part of the city free from mosquito breeding pools of water and to prevent stagnant water collecting in receptacles of any kind. A staff of inspectors is kept busy visiting back yards and other places where mosquitoes might find a breeding place, and any one violating the regulations is arrested and severely fined.

Port of Spain is situated on the Gulf of Para, which lies between Trinidad and Venezuela, so nearly land-locked that it has sometimes been called a lake. It has already been noted that Trinidad's transshipment trade is greater than its import trade for home consumption, and as all this trade is handled at Port of Spain it adds considerably to the importance of the city.

Many business men from Venezuela visit Trinidad in connection with the import and export trade. Sometimes their wives come with them, and it is said that they do a good deal of shopping in the large department stores of Port of Spain.

Venezuela visitors find the capital of Trinidad so attractive that in many cases when they have made their fortunes and are ready to retire they select it as their place of residence. There are already a considerable number of wealthy Venezuelans in Port of Spain and the number is increasing.

Although Port of Spain is such an important shipping port, the water on the harbour is so shallow near shore that large steamers are obliged to anchor at least a mile and a half out and unload into lighters. The director of public works of the colony recently prepared an estimate of the cost of dredging a channel and providing docks with sheds or warehouses.

However, some of the shipowners have expressed the opinion that owing to its unique smooth water facilities lighterage is the most expeditious mode of handling inward and outward cargoes, and they claim that the large expenditure proposed for dredging a channel and constructing wharves would necessitate additional port charges that would be burdensome to shipping.

There is a very wide street facing the harbour on which front a number of important wholesale houses and export warehouses. Parallel with this runs another very wide business street known as Marine Square, on which are the leading banks, offices of steamship companies and a number of wholesale and retail establishments. But the principal retail shopping thoroughfare is Frederick street, which is quite narrow.

The pride of Port of Spain is the savannah, a large public park with mountains in the background. Between the savannah and the mountains lie government house and the botanic gardens. The savannah is surrounded by a fine asphalt drive, fronting on which are the Royal Victoria Institute, Queen's College and many beautiful residences. The view of the savannah and the hills beyond is one never to be forgotten.

Montrealers can form an idea of what the savannah is like by imagining all the land between St. Catherine street and the mountain and from Park avenue to Gay street to be a great park surrounded by fine residences with a government house and beautiful botanic gardens nestling at the foot of Mount Royal. Torontonians could reproduce the savannah by clearing all of the buildings out of Queen's Park, placing a fine government house and botanic gardens at the Bloor street boundary and imagining a beautiful range of high hills rising up where St. Clair avenue now runs.

Besides the savannah, Port of Spain has a number of fine public squares.

The main part of the city lies between Marine square and the savannah.

The electric street railway which connects all the residential quarters of the city with the business centre is controlled by Canadian capital.

Port of Spain is the wholesale centre and distributing point for the whole of Trinidad.

There are several quite extensive department stores in Port of Spain, one of them having 19,817 square feet of floor space devoted to the retail business and 4,808 square feet devoted to its wholesale department, a total of 24,625 square feet.

THE CITY OF GEORGETOWN, DEMERARA.

The best planned city in all the West Indies is Georgetown, Demerara. When British Guiana's public lands are settled and its natural resources fully developed Georgetown will probably be the greatest city in the West Indies, surpassing even Havana in population, for British Guiana is considerably more than twice as large as Cuba.

Georgetown's streets are planned on a scale that would be creditable to a large city. The chief business streets are not exceptionally wide, but none of them are narrow excepting in a small section which was recently destroyed by fire and is to be rebuilt on a wider scale.

There are a number of great residential boulevards as wide as University avenue, Toronto. Along the centre of these streets is a wide walk shaded by immense ornamental trees and on each side is a driveway.

Georgetown has been called the garden city of the West Indies and it well deserves the name with its great boulevards and public squares, its botanic gardens and private homes embowered among trees and flowers.

Georgetown is making war on the disease-breeding mosquito as persistently as Port of Spain, but it is not as advanced as the Trinidad city regarding water supply and sewage. For fire and flushing purposes water is piped into the city, but for domestic purposes rain water is collected from the roofs in vats and tanks, which in accordance with strictly enforced public regulations are guarded against mosquitoes. This rain water is filtered and boiled and is declared to be very pure.

The business front of Georgetown with extensive wharfage facilities is along the Demerara river, but one end of the city faces the sea. Georgetown is built on ground about four feet below the level of high tide, but it is protected by a high and strong sea wall, so wide that it is a popular promenade and band concerts are given on it.

The electric street car system of Georgetown, like that of Port of Spain, is controlled by Canadian capital.

Georgetown is the commercial, political and social centre of British Guiana. Some of the largest distributing houses in the British West Indies are located here and the retail stores compare favourably with those of Port of Spain.

There are two large markets in Georgetown.

THE CITY OF KINGSTON, JAMAICA.

Kingston, Jamaica, had an earthquake a few years ago which left a great part of it in ruins, but there is very little trace of the destruction to-day. In rebuilding reinforced concrete was largely used, making structures which are believed to be earthquake proof. King street, the leading retail shopping street, was entirely rebuilt and is now the handsomest business street in the British West Indies. This street and a few others are well-paved and have fine wide sidewalks, but the city as a whole is not paved and is very dusty, while most of the streets are without sidewalks. But while the streets are dusty the city is not dirty. One sees no filth anywhere.

Kingston has the finest government buildings in the West Indies. They are situated in the centre of the leading thoroughfare of the city which extends from the water front to the public gardens.

There are many homelike houses in the city, but the grounds belonging to them are concealed by high and strongly built walls or fences of stone or cement. If the money expended on these walls had been used to construct sidewalks and asphalt pavements Kingston would look as spruce and modern as Port of Spain.

A considerable portion of Kingston is provided with sewers, and the system is being extended. A good supply of pure water is piped to the city from a mountain stream.

Along the wide country roads for several miles beyond the city are suburban residences which look very attractive in their large grounds among tropical trees and flowers.

The Kingston electric street railway system extends into the country for several miles and many of the business men live outside.

The harbour of Kingston is the finest in the West Indies, and there are good wharfage facilities.

There is a large and handsome market building.

THE TOWN OF HALF-WAY-TREE.

Any visitor to Jamaica who examines the census report will find in a table of the chief towns "Half-Way-Tree and Vicinity," population 28,322 in 1911 as compared with 9,702 at the previous census. Wishing to see this rapidly growing city he will be informed that Half-Way-Tree can be reached by electric car, but on arrival there he is surprised to find no business houses excepting a few village stores, and the discovery is made that Half-Way-Tree is really only a garden suburb of Kingston. All the way along the road between Kingston and Half-Way-Tree are suburban homes with very large grounds.

THE CITY OF BRIDGETOWN, BARBADOS.

In Bridgetown, Barbados, as in Kingston, Jamaica, the grounds surrounding the homes are walled in. A great deal of money must have been expended on these walls and the city would look better without them, as it would be easier to see the beauty of the grounds which they enclose. There are many really beautiful residences in Bridgetown and its suburbs.

Within the statutory limits of the city the population was only 16,648 at the last census, but there is no dividing line between the city proper and its residential suburbs and the census report recognizing that these suburbs are actually part of the city states the united population to be 35,000.

The business streets of Barbados are narrow, but Trafalgar square in the centre of the business quarter relieves the appearance of narrowness. The principal residential streets look wider because the houses stand back quite a distance from the street.

Bridgetown is to some extent a distributing centre for the Windward and Leeward islands as well as for Barbados. There are a number of important importing and exporting houses here.

In the retail district there are many good stores. It must be noted that the whole population of Barbados do their shopping in Bridgetown. Remember that the length of the island of Barbados from end to end is ten miles less than the length of the island of Montreal. So Broad street, Bridgetown, which is broad only in name, may be regarded as the shopping district for a garden city of about 172,000 people.

Bridgetown has good water piped from the hills. There is no general sewer system in Bridgetown, but sanitary regulations for keeping closets clean have been carefully devised and are strictly enforced.

The roadways are not paved, but being macadamized with coral limestone are quite good.

While I was in Barbados the work of changing the horse car tramway into an electric system was begun.

SMALLER CITIES AND TOWNS.

Trinidad, British Guiana, and Jamaica all have their smaller towns which may be grouped with the leading towns of the Windward and Leeward islands, the population being as follows:

Castries, St. Lucia	10,254
San Fernando, Trinidad	8,667
New Amsterdam, British Guiana	8,604
Basseterre, St. Kitts	8,159
St. John, Antigua	7,910
Spanish Town, Jamaica	7,119
Port Antonio, Jamaica	7,024
Montego Bay, Jamaica	6,616
Roseau, Dominica	6,577
Kingston, St. Vincent	6,021
St. George's, Grenada	5,188
Tunapuna, Trinidad	5,644
Princes Town, Trinidad	4,438
Arima, Trinidad	4,020

THE TOWN OF CASTRIES, ST. LUCIA.

It should be noted that the town of Castries proper, which is built very nearly on sea level, had only 6,266 inhabitants in 1911, but a large proportion of the better classes of Castries live on the high hills which surround the town. What the census report calls "Suburban Castries" had a population of 3,988, making the total 10,254 as stated above. Castries has a very fine harbour. It is the only place between Bermuda and Georgetown, British Guiana, where the Royal Mail Canadian steamers can unload cargo at the docks. At every other port until Georgetown is reached the cargo must be unloaded into lighters.

Castries is an important coaling station. The number of steamers bunkering there last year was 535. The total number of entries and clearances of steam vessels last year was 1,670 with a tonnage of 3,528,539, while the entries and clearances of sailing vessels numbered 562, with a tonnage of 18,152. The Treasurer of St. Lucia points out that compared with the latest figures available of the twenty-five principal ports in the self-governing Dominions, Crown colonies, possessions and protectorates enumerated in the British Board of Trade's Statistical Abstract Castries stands fourteenth in the list.

In addition to supplying ships with coal, Castries sold them last year 2,902,312 gallons of the fresh, pure water which is piped to the city from the mountains.

The admirable sanitary arrangements of Castries are described in the chapter devoted to health conditions in the West Indies.

THE OTHER TOWNS.

Basseterre, St. Kitts; St. John, Antigua; Kingstown, St. Vincent; and St. George's, Grenada, are all clean, well-built towns. Roseau, Dominica, is becoming important commercially owing to the growing prosperity of the island, but it is very ugly and is a blot on the grandeur of what has been described as the most beautiful island in the whole world. Plymouth, the shipping port of Montserrat, had only a population of 1,534 at the census of 1911.

San Fernando, Trinidad, is the shipping point for an important sugar and cacao district. Port Antonio, Jamaica, is the headquarters of the United Fruit Company, and there is a very good service of fruit steamers carrying bananas regularly from this port to New York.

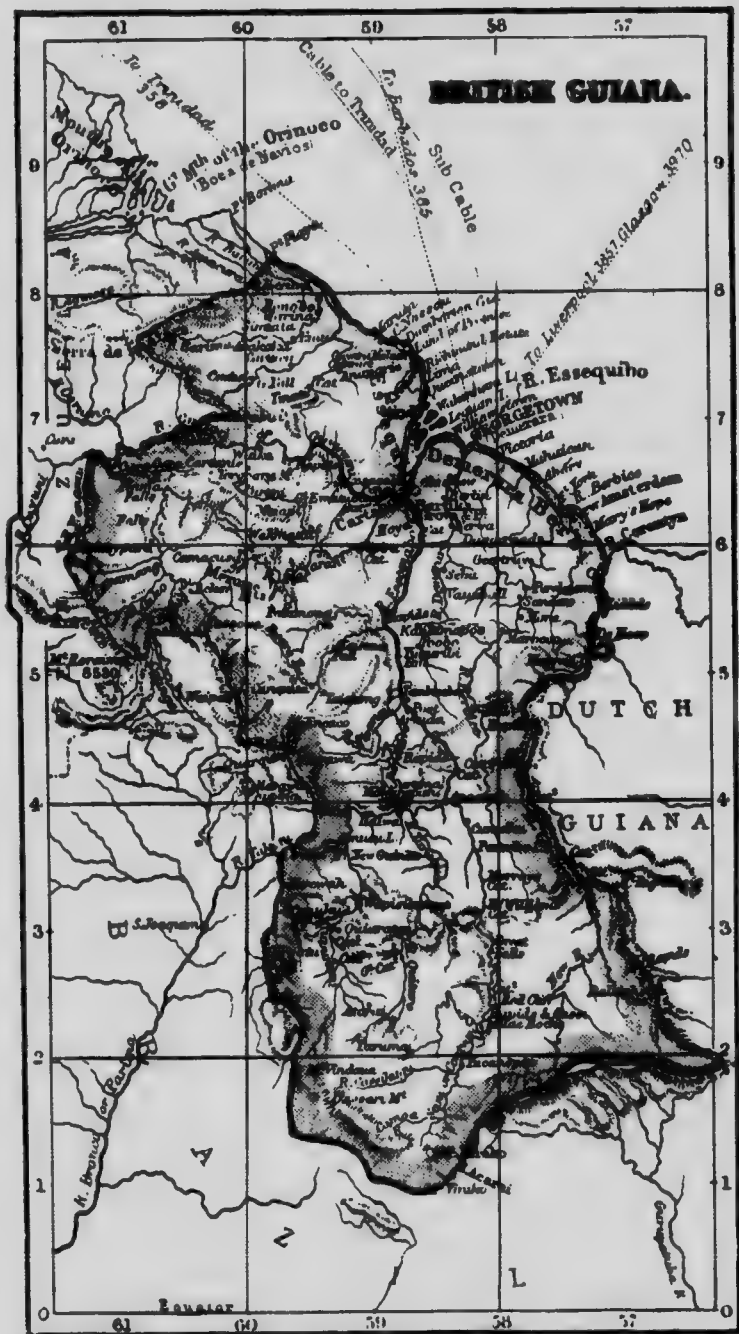
New Amsterdam, at the mouth of the Berbice river in British Guiana, is the capital of the county of Berbice. As the fertile lands which extend many miles up the Berbice river are settled it will increase in commercial importance. It should be noted that New Amsterdam is sometimes called Berbice, and some of the business houses have Berbice printed on their stationery instead of New Amsterdam. When a Georgetown business man is about to pay a visit to New Amsterdam he usually says, "I am going to Berbice."

Nassau, the capital of Bahamas, is on the island of New Providence. It is quite a popular winter resort for visitors from the United States and Canada.

Belize, the capital and principal seaport of British Honduras, has a population of about 10,000.

However, any Canadian manufacturer visiting the British West Indies who sees only the cities and towns will have a very inadequate conception of these colonies. Not only for an understanding of present trade conditions, but in order to grasp the opportunities of future expansion it is necessary to make a study of the natural resources and capabilities of each colony. The Canadian importer of tropical products whether for food or for raw materials of manufacture equally requires a knowledge of these local conditions. Although all these colonies are in the tropics each has its own characteristics and the products which are best adapted to some of them cannot be successfully grown on a commercial scale in others. I shall describe in future chapters of this report the natural resources and capabilities of each colony.

As British Guiana is by far the largest of the colonies and offers opportunities for immense development the next three chapters of this report will be devoted to an account of its geographical situation, physical characteristics, natural resources and productions.



Chapter XV.

BRITISH GUIANA.

British Guiana is bounded on the northwest by Venezuela, on the east by Dutch Guiana and on the south and southwest by Brazil. Its most southern point almost touches the equator, being $0^{\circ} 41'$ at the source of the Essequibo river on the border of Brazil, while at Punta Playa, its most northern limit, it reaches $8^{\circ} 33' 22''$ north latitude. British Guiana looks small on the map in comparison with the vast territory of Brazil, but its area is a little larger than that of Great Britain, being 90,277 square miles, while England, Scotland and Wales together have an area of 88,120 square miles. It has a seaboard of 270 miles, extending from Punta Playa, near the eastern mouth of the river Orinoco, to the mouth of the river Courantyne, which forms the boundary between the British colony and Dutch Guiana. From the ocean southward it varies in depth from about 540 miles at the west to about 300 miles at the east.

THE LOWLANDS AND THE HIGHLANDS.

Looked at from any point on its 270 miles of seaboard British Guiana presents the appearance of a low-lying flat country as far as eye can reach. This plain varies in width from ten to forty miles, widening toward the east, and many parts of it have much the same appearance as the prairies of western Canada. What Canadians call a prairie is known in British Guiana as a savannah, and there are many small savannahs in the colony both in the lowlands near the coast and in the highlands of the interior.

To the south of the flat coastlands extending along their full length is a broader belt having an elevation of about 50 feet above sea level at the front and sloping back to a height of about 100 feet, with hills in some places 200 feet above sea level.

It is estimated by Mr. C. Wilgress Anderson, the government surveyor and forestry officer, that these two belts, which may be called the lowlands of British Guiana, vary in depth from 35 to 110 miles inland from the coast and embrace an area of about 17,000 square miles, the widest parts being at the east of the colony and especially near the Berbice river.

"Beyond these belts southwards," says Mr. Anderson, "the country rises between the river valleys, and as it approaches the sources of the larger rivers attains a height of about 900 feet above the sea level at the source of the Takutu river on the western boundary and about 400 feet above the sea at the source of the Courantyne river, the eastern boundary. The surface of this elevated hinterland is greatly diversified by hills and valleys; it contains all the principal mountain ranges, also several irregularly distributed small ranges, and in addition in its southern and eastern parts there are many scattered and isolated mountains."

Mr. Anderson, who has travelled extensively in the interior of the country and who accompanied Sir Walter Egerton on a two months' trip along the route of the proposed railway, says that the most prominent feature of the hinterland is a group of flat-topped mountains which form more or less extensive undulating plateaus, each rising above the other in successive terraces from about 1,000 feet to about 3,500 feet above sea level, intersecting which there are many ranges of over 4,000 feet, and at the extreme south of the colony rising above all these heights are the isolated plateaus of Mount Roraima and Mount Kukenam.

A LAND OF MANY RIVERS

British Guiana is a land of many rivers, some of them of immense size. In the British West India islands what Canadians would consider small creeks are called rivers, but in British Guiana many rivers navigable for some miles from their mouths are called creeks, because they are small in comparison with the great rivers of the colony. But even the great rivers, in spite of their length and the enormous volume of water which they pour into the ocean, do not serve well as convenient highways to the far interior of the country, because after the two low-lying belts of land which stretch across the front of the colony have been passed and the highly elevated hinterland is reached navigation is obstructed by rapids and waterfalls, although there are many long navigable stretches. There are no roads from the seacoast to the hinterland, and the only way of communication with the highlands is by means of small boats that can be portaged around the rapids and waterfalls. It is important that Canadian exporters should understand these conditions, because food supplies intended for consumption in the mining, lumbering and balata camps of the interior must be so packed as to be easily transported in these small boats and conveniently handled in loading and unloading.

The Demerara river ranks sixth in size among the rivers of the colony, but it is the most important commercially. This river has a length of 200 miles and is navigable for large steamers as far as Wismar, 65 miles from the sea, while smaller vessels go 15 miles farther up. At its mouth is Georgetown, the commercial metropolis and capital of the colony. The Berbice river ranks next to the Demerara in commercial importance. At its mouth is the important town of New Amsterdam.

That part of the seaboard lying between the Demerara river and the Venezuela boundary is called the west coast; the seaboard from the Demerara to the boundary of Dutch Guiana is called the east coast.

Emptying into the Atlantic on the west coast are the Essequibo, the Pomeroon, the Waini and the Barima rivers, while the Berbice and Courantyne are on the east coast. These rivers have a number of important tributaries.

In addition to the rivers mentioned there flow into the Atlantic a number of small independent rivers, which although comparatively narrow are quite deep and provide communication from the seaboard to points some miles inland.

Thus there is a network of rivers throughout the colony and notwithstanding the expense and delay necessitated by the portaging of boats around waterfalls in the highlands no section of the country can be considered absolutely inaccessible.

It must not be forgotten that rapids and waterfalls do not begin until after the coastlands and the slightly elevated belt of land beyond them have been passed so that no part of the lowlands is very far distant from navigable waters.

STEAM NAVIGATION.

Small steamers go up the Courantyne river a distance of about 87 miles from the sea. In dry seasons the steamer terminus on the Berbice river is 88 miles from the sea coast but in the rainy seasons navigation is uninterrupted for 165 miles from the river's mouth. The Canje creek, which joins the Berbice near its mouth, although narrow, is very deep and is navigable for 51 miles from its mouth. The Pomeroon has uninterrupted steam navigation for about 35 miles from its mouth, while the Waini river steamer terminus is 53 miles from the sea. Small steamers ascend the Barima for 94 miles in the dry season while in the rainy season this river is navigable by small steamers for 210 miles.

The Essequibo, the greatest of Guiana rivers, has its source almost on the equator at an elevation of 850 feet above sea level and enters the Atlantic Ocean at the 7th parallel of north latitude, after flowing a distance of over 600 miles including windings. The government surveyor says that its drainage basin together with those

of its tributaries comprises considerably more than half the area of the colony. At Bartica, about 60 miles from the ocean, it is joined by the great Mazaruni river which itself receives the waters of an important tributary, the Cuyuni 5 miles above Bartica. The Essequibo is $3\frac{1}{2}$ miles wide at Bartica and gradually expands as it flows toward the sea, having a width of 14 miles at the mouth and containing three large islands and a number of small islands. Large steamers run up the river as far as Bartica, and small steamers 20 miles farther up, but beyond that navigation is obstructed by many waterfalls and rapids with navigable stretches between.

THE WONDERFUL KAIETEUR FALL.

The Essequibo has many tributaries the most noted of which besides the Mazaruni are the Rupununi, which flows through the much talked of Rupununi Savannah, and the Potaro, famous because falling from a high tableland 60 miles above the point where it joins the Essequibo it forms the wonderful Kaieteur Fall, which having a perpendicular drop of 741 feet, is over four times the height of Niagara.

I was informed by Mr. C. Wilgress Anderson the government surveyor and forestry officer, that the width of this fall varies from 350 feet in the dry season to 400 feet in the rainy season and that the depth of water passing over ranges from a few feet to over 20 feet, although the Potaro river even in dry seasons has a depth of 35 feet about a quarter of a mile above the fall.

The whole valley of the Potaro river is wonderfully beautiful and the scenery in the vicinity of Kaieteur is indescribably grand, while the waterfall itself is awe-inspiring.

The Potaro river joins the Essequibo 130 miles from the sea, so that the following the course of the two rivers the waterfall is 190 miles from the ocean. If there were railway connection with the coast visitors to the colony could reach Kaieteur in a few hours, but under present conditions it takes from ten to eleven days to make the journey from Georgetown to Kaieteur and return.

For over fifty years Sprotons Limited of Georgetown, in which the Royal Bank of Canada now has a controlling interest, have been subsidized by the government to provide a steamship service from Georgetown to the head of navigation on the important rivers of the colony, but recently it was decided to establish a government service in competition with Sprotons.

There are two government railways, one extending from Georgetown along the east coast for 60 $\frac{1}{2}$ miles to Rosignol on the Berbice river opposite the town of New Amsterdam, the other extending from Vreed-en-Hoop opposite Georgetown to the Essequibo river, a distance of about 15 miles.

The Demarara-Essequibo Railway extending from Wismar, the head of navigation on the Demarara river, to Rockstone on the Essequibo river, a distance of 18 $\frac{1}{2}$ miles, belongs to Sprotons Limited. Apart from its utility as a means of transporting greenheart timber from the forests to ships at Wismar this railway is used chiefly by tourists bound for the Kaieteur Fall and by miners going to the Potaro gold fields. Launches carry passengers and freight from Rockstone to Potaro Landing, the remainder of the journey up the Potaro to Kaieteur being made with small boats that can be portaged around the rapids. There are rest houses on the way and the beauty of the Potaro valley scenery makes the whole trip interesting.

British Guiana is divided into three districts known as Demarara, Berbice and Essequibo. The most important commercially is Demarara.

The natural resources and capabilities of British Guiana will be described in another chapter.



An irrigation and drainage canal in British Guiana.



Sugar cane punts at a British Guiana factory.

Tapping Rubber in British Guiana.



Every rubber tree requires a cup which should be made in Canada.



Young rubber trees on a Mazaruni River plantation.



Washing for diamonds in British Guiana.



Over 1,200,000 diamonds have been found in British Guiana during the last fourteen years.

Chapter XVI.

THE RESOURCES OF BRITISH GUIANA.

With lands lying at so many different altitudes British Guiana's climate naturally varies in different sections, but it is everywhere very equable. Along the coast the difference between the mean maximum temperatures of the hottest and coolest months of the year is a little over three degrees, while the variation between the mean minimum temperatures is only 1.6°. At the botanic gardens, Georgetown, where the temperatures may be regarded as representative of the coast lands, the annual mean temperature is 81.0° F., the mean maximum 85.9° F., and the mean minimum 75.8° F.

In the forest region of the slightly elevated belt back of the coastlands the temperatures range from 72° to 80°, while in the highlands of the interior somewhat greater extremes of temperature are registered.

There is always a breeze blowing which tempers the heat. Coming down the Essequibo river on a steamer one day I became acquainted with a Roman Catholic priest now in charge of a Portuguese congregation in Georgetown who lived for years in India and Ceylon. He said when he received instructions that he was to be transferred from Ceylon to British Guiana he looked up the latitude on the map and concluded that the climate would be much the same as he had experienced in India and Ceylon. He was surprised to find after arrival in British Guiana that the heat was very much less oppressive owing to the trade winds. He said he found it much less exhausting than the climate of Ceylon.

FREE FROM HURRICANES AND EARTHQUAKES.

British Guiana is free from the hurricanes that sometimes sweep over most of the British West Indian islands, and it has never suffered from an earthquake.

There are 57,770,000 acres of land in British Guiana and only about 2,000,000 acres are privately owned, so that there are about 55,700,000 acres of unalienated Crown lands.

The government estimate that in the lowland country easily accessible by the coast railway or by the rivers navigable by steamships below the rapids and waterfalls there are about 10,880,000 acres, and over 7,000,000 acres are considered suitable for agricultural purposes, of which approximately one million acres have been disposed of by the government, leaving unalienated about six million acres of easily accessible Crown lands suitable for agriculture. A considerable proportion of the lands in private hands remain unoccupied and could be purchased at moderate prices.

There are estimated to be 3,700,000 acres of savannah lands in the lowlands, while the savannahs of the highlands are said to have an area of 3,000,000 acres, the remainder of the hinterland being forest. It is believed that a great part of the vast forest covered interior when cleared will be suitable either for agriculture or for rubber plantations and fruit growing, while the savannahs of the interior are known to be well suited for cattle raising and probably for agriculture.

NO RICHER TROPICAL LANDS.

Sir Daniel Morris, formerly Commissioner of the Imperial Department of Agriculture, the value of whose opinion will not be questioned, has said: "The undeveloped Crown lands of British Guiana are among the richest existing in any part of the tropics. It is almost inconceivable that such lands should have been so

long neglected, while comparatively poorer and less accessible lands are being sought for in the heart of Africa, or in such distant parts of the world as Borneo and New Guinea. From a somewhat extensive and intimate acquaintance with the cultural industries carried on in various parts of Her Majesty's possessions, I am able to state that I know nowhere of such an extensive area of rich and fertile lands with a comparatively healthy climate and within easy reach of such good markets as British Guiana. They can grow nearly every tropical product in demand either in the new world or the old. Further, they are under the control of a firm and stable government, which can offer a stronger guarantee for the permanence of any enterprise that may be started under its auspices than any other in South America."

Sir Walter Egerton, Governor of British Guiana, who has himself spent several months exploring the interior of the country, thinks that no observant traveller can doubt the existence of vast areas of fertile land.

THE RUPUNUNI SAVANNAH.

Mr. H. P. C. Melville, the Government Commissioner of the Rupununi Savannah, the great prairie in the highlands through which the proposed railway to the frontier of Brazil would run, told me that about twenty-six years ago he brought into that savannah from Brazil 160 head of cattle. He said that since then the herd has never been added to from outside, but it has increased to about 10,000. He says that in the driest seasons the cattle never have any difficulty in finding water.

He has a great variety of tropical fruits growing successfully in his gardens, and believes that the Rupununi savannah is well adapted for fruit growing, but thinks that tobacco and cotton would be the most successful crops. The area which he has under cultivation is limited, but he has noticed that the gardens of the Indians in various parts of the savannah seem very successful. The general suitability of this savannah for agricultural purposes has yet to be demonstrated as there are not a dozen settlers in the whole savannah, but Sir Walter Egerton is quite enthusiastic about it.

SUITABLE FOR HIGH CLASS TOBACCO.

Prof. J. B. Harrison, Director of the British Guiana Department of Science and Agriculture, told me that he had not visited the Rupununi savannah. He was not very optimistic about the agricultural possibilities of the savannah as a whole, but having examined samples of soils selected from different parts of this savannah, he said: "To my mind the product which is indicated by the analytical examination as the most certain for successful cultivation on the more fertile lands of the Rupununi savannah is tobacco—not ordinary heavy strains of tobacco, but tobacco of the higher classes. I have no doubt that there are wide areas of land where undulating ridges of the savannah gradually merge into the rich soils of the river and creek lands and fertile hollows where soils of similar physical and chemical composition to those of Vuelta-Abajo of Cuba occur. These would produce tobacco which, suitably fermented and cured, should be of the highest quality. There are other soils of a reddish sandy nature containing from 30 to 40 per cent of clay situated on the sides of the lower slopes of the hills which should produce a high quality of Turkish tobacco."

But setting aside both the savannahs and forest covered lands of the highlands, which have never been fully explored and examined, although the character of the forests and the successful gardens of Indians wherever they have cleared and cultivated land indicate great fertility, let us consider only the easily accessible lowlands, the character of which is well known.

THE COASTLAND SETTLEMENTS.

At present nearly the whole population of the colony is concentrated close to the seacoast, settlement generally extending not more than two or three miles back and probably not more than 10 miles back at any point except a few plantations along the river banks. In this settled fringe are all the great sugar plantations, the East Indian settlements and the negro villages.

Back of this settled country is a large area of flat alluvial lands of great fertility, extending as far as the slightly elevated belt referred to in the last chapter of this report, but these rich alluvial lands generally require drainage to make them available for cultivation.

For some miles from the coast of British Guiana the sea is very muddy. At certain points along the coast the land area has been increased in recent years by the action of the sea; at other points the sea has encroached upon the low-lying land and areas once devoted to sugar growing are abandoned. It is probable that by systematic dyking vast areas of land could be reclaimed from the sea. On the other hand to save the front part of many of the sugar estates from destruction permanent dykes are necessary. Enormous sums of money have been expended by sugar planters on temporary dykes that have to be repaired constantly. Competent engineers expressed the opinion that a small proportion of the money that has been expended on such temporary dykes during the last fifty years would have provided permanent dykes invincible to the attacks of the sea, but the construction of permanent dykes would require a large investment of capital at one time and the planters have not capital available for the purpose. Moreover dyking cannot be successfully accomplished by individuals. United action is necessary. The government is being strongly urged to undertake the construction of permanent dykes along the sea coast.

It has been suggested that a general scheme of dyking might be so planned as to add to the colony a vast area of muddy flats now covered by the ocean. It is claimed that this would be no more difficult than the making of Holland and that the new lands thus created being easily accessible and extraordinarily fertile, could be sold for more than enough to cover the whole cost of protecting the present coastlands, but with such great areas of Crown lands already available the government is not likely to be tempted to enlarge the colony in this way at present. Any scheme of dyking undertaken by the government will probably provide only for the protection of lands not now covered by the sea except where lands can be reclaimed without additional expenditure.

The low-lying lands along the rivers also require empoldering to prevent the ravages of the rivers in flood time, but comparatively inexpensive dyking suffices to protect these river valley lands which are remarkably fertile.

The settler who undertakes to establish a plantation in the lowlands of British Guiana on lands that have never been cultivated, whether along the seacoast or in the river valleys should provide a system of drainage ditches to dispose of the surplus water during the heavy downpours of the rainy season and in some sections crops could be greatly increased by irrigation during the dry season, although British Guiana has usually a very good rainfall.

There are so many rivers great and small coming down to the sea that there would be no difficulty in providing irrigation and drainage for every part of the coastlands, making the plantations entirely independent of weather vagaries. Some of the plantations are calling upon the government to provide a general scheme of irrigation. It has been found that large supplies of water can be easily obtained from artesian wells and there is a difference of opinion as to whether it would be less expensive to get the water for irrigation from such wells or from the rivers.

On the other hand it has been argued that in ordinary years British Guiana has an adequate rainfall fairly well distributed throughout the year and that a large government expenditure for irrigation would not be justifiable although in recent years the rainfall could not depended upon as surely as usual.

THE ANNUAL RAINFALL.

The average annual rainfall in the 33 years from 1880 to 1912 according to the records of the botanic gardens in Georgetown, was 92.74 inches, the heaviest annual rainfall during this period being 135.24 inches in 1898, the lowest 52.7 inches in 1899. The records show very great variations in the rainfall for the same months in different years. For instance, in 1901 the rainfall for January was less than one inch, while in 1880 it was 25.11 inches for the same month. In other years it varied all the way between these extremes, the average rainfall for the month being 5.26 inches. The months having the greatest average rainfall are May, June, July and December, with 11.50 inches, 12.06 inches, 10.61 inches and 11.46 inches respectively, while the months with lightest rainfall are September, October and November with 3.01 inches, 2.85 inches and 5.2 inches respectively. The months showing the least variations from year to year are May, June and July.

Records kept for eleven years at twenty-five stations in the coastal lands showed considerable differences in the rainfall of different districts.

In the forest regions of the slightly elevated country back of the coastlands the rainfall is greater and more evenly distributed throughout the year.

SAND THAT LOOKS LIKE SNOW.

In the slightly elevated belt there are considerable areas of sand almost as white as snow, and any one not acquainted with the character of this sand would suppose that nothing would grow in it, but the sand hills are generally covered by great forests of wallaba trees. However, there are some stretches of savannah lands interspersed between the forests, which seem to be largely composed of the same white sand. Neither the forest covered sand hills nor the sandy savannahs are included in the government estimates of arable land. It is probable that all this district will be maintained as a forest reservation, as it will serve to conserve the water as well as to furnish a permanent supply of timber.

Excepting the sandhills, the lowlands of British Guiana are so generally remarkably fertile that with a general system of permanent dykes, irrigation and drainage they could probably support as large an agricultural population as any other part of the world of equal area. Even without these improvements there are extensive areas of easily accessible lands of great fertility available for settlement.

While the government experts estimate that over seven million acres of the lowlands are suitable for agriculture, the area at present under cultivation is less than 360,000 acres.

The clay lands of British Guiana are very rich in potash, the soil constituent which scientific agriculturists say is first exhausted by sugar cane cultivation, and they are consequently well suited for growing sugar cane. The exports of British Guiana sugar for the calendar year 1912 amounted to 174,828,000 pounds, and the exports of molasses to 112,600 gallons.

Hon. J. M. Reid, Comptroller of Customs, says that while the production of sugar is not decreasing the exports of other tropical products are steadily increasing. There may be a set-back comparing one year with another owing to drought or some other cause, but the general movement is upward. Mr. Reid says that not many years ago sugar, molasses and rum were almost the only exports of the colony, but last year sugar exports formed only 67 per cent of the total exports.

RICE CULTIVATION.

The East Indians are very fond of rice, and for many years after they became an important element of the population nearly all the rice consumed by them was imported. In 1890 the quantity of rice imported into British Guiana was 24,890,000 pounds, and there were no rice exports. In 1913 the quantity of rice imported was only 13,384 pounds, while 17,269,518 pounds of rice were exported. British Guiana is milling rice as well as growing it. There are a number of small rice mills in various districts of the colony and several quite large ones.

It is interesting to note that the development of the rice industry was brought about by the imposition of a high customs duty on imported rice. The object of the duty appears to have been to raise revenue, but it proved to be protective, and the rapid development of rice growing and rice milling in British Guiana is a good illustration of the effectiveness of protection in developing home industries. British Guiana had every natural advantage for rice growing and the East Indian population had been accustomed to rice cultivation in India, but it required the stimulus of a protective tariff to establish the industry on a scale to supply the home market. The present customs duty on rice is 50 cents per 100 pounds.

The exportation of rice did not begin until 1902-3 when about 11,000 pounds were exported.

Most of the 17,269,518 pounds of rice exported from British Guiana last year went to the British West Indian islands, but it is hoped that before long there will be sufficient rice produced to supply the Canadian consumption also.

The great Abari rice plantation of 20,000 acres, where modern agricultural machinery the same as used in wheat cultivation is used in every part of the work, has already been described in Chapter VI of this report.

OTHER TROPICAL PRODUCTS.

The exports of other tropical farm products were as follows:

Coffee..	..Lbs.	29,312
Cacao..	.."	56,565
Copra..	.."	126,274
Coconuts..	..Nuts.	875,595
Rice-meat..	.."	1,810

As regards coconuts, it should be noted that the number exported is no indication of the quantity produced as considerable quantities of nuts are used in the colony in making oil which is greatly demanded by the East Indians. The planting of coconut trees has been very general along the coast in recent years, and the production will greatly increase when the trees come into bearing.

RUBBER PLANTATIONS.

There is much reason to believe that rubber may yet rival sugar as the chief product of British Guiana if the future price of rubber does not rule so low as to discourage production. A very large proportion of the Crown lands of the colony possess ideal conditions of soil, temperature and rainfall for growing Para rubber. Much time was lost in experimenting with an indigenous rubber tree known as *Sapium Jenmani*, being named after a former Government botanist of British Guiana. The tree grew quickly and produced rubber of fine quality, but it was found after a time that such long intervals must be allowed between tappings that it would not pay to establish plantations.

About five years ago when it was evident that *Sapium Jenmani* was not likely to prove an economic success, the first Para rubber plantation was started in British Guiana. The trees have had a remarkably rapid growth, and it seems probable that they will be large enough for tapping at an earlier age than the Para rubber trees

of Ceylon and the Malayan States, which at present are the world's chief source of supply for plantation rubber. When I visited the Hills estate on the Mazaruni river, where 600 acres are already in Para rubber, and it is proposed to plant 15,000 acres of rubber trees, I saw the record of 32 trees which had been tapped for ten months and twelve days, yielding on the average a fraction over two pounds of rubber per tree, which compares very favourably with the average yield of much older trees in Ceylon. On the Tuschen sugar estate near the coast, where I saw 48,000 young rubber trees, I was told that equally favourable records were being made by the few trees already tapped.

Para rubber, scientifically known as *Hevea brasiliensis* is commercially the standard rubber. Its original home was in the forests of Brazil, but seedlings grown in the Kew Gardens from seed obtained in Brazil were transplanted in Ceylon about 38 years ago and proved so successful that many plantations were started in Ceylon, the Malayan States and India.

British Guiana's geographical situation is almost exactly parallel with the Brazilian districts where Para rubber is indigenous. The two countries adjoin each other, meeting almost at the equator. It is not surprising that the Para rubber trees grow most successfully so close to their original habitat. The wonder is that British Guiana did not follow the example of Ceylon many years sooner. Now the only thing that prevents very extensive planting of Para rubber is the fear that the wages of labour are too high compared with the cost of labour in the far East. Yet on the Hills estate I was told that they could get all the help required at a shilling a day, and it was pointed out that British Guiana is so much nearer to Canada, the United States and the markets of Europe than Ceylon and Malaya that the cheaper cost of transportation would offset the higher cost of labour to a great extent.

LABOURERS REGISTERED.

While the vast areas of fertile land in the interior of British Guiana are as yet untouched by the hand of civilized man there are two branches of industry carried on in the highlands, balata collecting and mining. Lumbering operations are not conducted above the point where the rapids and waterfalls begin because it would be impracticable to bring down timber.

The men employed in gathering balata, lumbering and mining generally have their homes in the towns and villages along the coast and go out in expeditions under contract. All these labourers are obliged to register at the Institute of Mines and Forests. For the year 1913 the number registering in Georgetown and New Amsterdam was 6,290, of whom 317 were employed in diamond mining, 1,089 in gold mining, 4,452 in balata collecting and the remainder in lumbering and other industries.

GOLD IN BRITISH GUIANA.

During the last twenty-five years the output of gold in British Guiana was 2,287,234 ounces, the quantity mined in the fiscal year 1913 being 62,098 ounces. Gold has been found very widely distributed in the colony and the output for the fiscal year 1913 came from ten different river districts.

A new discovery of gold was recently made near Pigeon Island on the left bank of the Cuyuni river between the Iroma and Copang creeks which is said to far surpass anything previously discovered in the colony. Rich finds are also reported from the Mazaruni river and are said to cover quite an extensive area.

The greater part of the gold taken out of British Guiana has been obtained from alluvial diggings, most of the diggers being black men. The miners are locally known as "porknockers." Dredging operations are being conducted by two companies with very satisfactory results and the Secretary of the Institute of Mines and Forests says that it is probable that extensive quartz mining operations will soon be started.

Mr. Frank Fowler, Commissioner of Lands and Mines, says: "It is remarkable that notwithstanding the crude methods employed and the lack of systematic prospecting of the ground the returns from placer washing are so steadily maintained year after year. Indeed the industry as a whole has shown a remarkable steadiness of output which few gold-producing countries have maintained over so long a period, and which has not been equalled by any other country lacking the introduction of modern methods to any extent as has been the case with this colony."

Sir Walter Egerton believes that when railway communication has been established between Georgetown and the interior there will be an immense expansion in the gold industry. He said: "Supplies for the miners have now to be sent by toilsome journeys up rivers cursed with dangerous rapids, cataracts and falls, the miners and their supplies taking weeks to reach their destinations. Scientific mining with modern machinery is almost impossible under existing conditions."

Since 1890 the gold production of British Guiana has amounted to over forty million dollars in value, enough to build the railway from Georgetown to Brazil with branches to the gold districts many times over.

DIAMONDS OF BRITISH GUIANA.

The output of diamonds in British Guiana for the thirteen years ending March 31, 1913, was 1,130,494 stones weighing 85,809 carats. For the year ending June 30, 1913, the output of diamonds was 75,479 stones weighing 7,577½ carats. The British Guiana diamonds are small, but of fine quality. The diamond fields are in the vicinity of the Mazaruni and Cuyuni rivers.

BALATA BLEEDING.

One of the most important industries of British Guiana is known as "Balata bleeding." The demand for balata, a rubber-like substance, for the manufacture of belting and other purposes is rapidly increasing, and the exports from British Guiana have grown steadily for many years. During the calendar year 1913 the quantity exported was 1,323,609 pounds, valued at \$768,463. The United Kingdom took 1,191,359 pounds, the United States 130,212 pounds, and Germany 2,038 pounds.

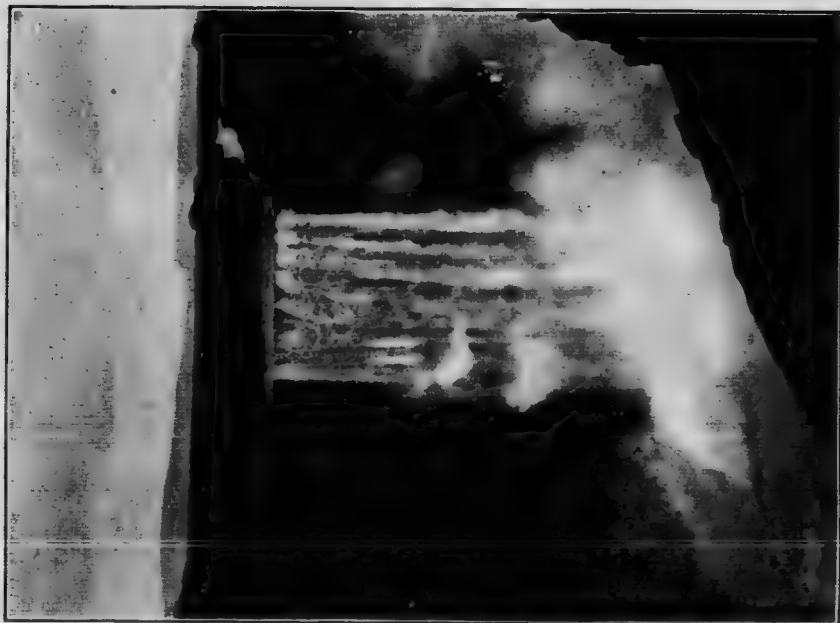
Balata trees, sometimes called bullet trees, grow in the forests all over British Guiana, but the number per acre is usually very small. It is estimated that not more than one tree per acre can be found in the forests of the coastlands and two or three to the acre in the slightly elevated lowlands, although there are small districts within this area where as many as 26 trees to the acre have been found. In the forests of the highlands they are much more abundant, but even in these forests of the hinterland the balata collector must be a hunter, for the finding of the trees is as important as the bleeding.

As balata has been exported from British Guiana for about fifty years in steadily increasing quantities it is surprising that no attempt seems to have been made to establish balata plantations. If instead of hunting over wide forests for bullet trees they were close together in plantations the cost of collecting would be very greatly reduced. But the tree is generally believed to be of very slow growth, although no one seems to know how long it does take for a tree to become sufficiently mature for tapping.

In Venezuela, where there are also bullet trees, it is customary to cut down the trees to get the latex, and this practice was formerly followed in British Guiana, but now the cutting of the trees is prohibited, and there are very strict regulations regarding the bleeding or tapping.



Lumberman's boats, Essequibo River, British Guiana.



The Kaitour Falls, British Guiana.

Chapter XVII.

LUMBERING IN BRITISH GUIANA.

Of the 90,277 square miles of British Guiana 78,500 square miles are estimated to be covered with forests still owned by the Government, but only about 11,200 square miles lie in the lowlands accessible to waterways unimpeded by waterfalls and rapids. The great forest region of the hinterland can only be developed when railways are built to bring the timber down to navigable waters.

The exports of timber and lumber from British Guiana are not very great, but they are steadily increasing. In 1905 the exports of timber were 293,315 cubic feet, and the exports of lumber 27,087 feet. In 1913 the exports of timber were 437,111 cubic feet and the exports of lumber 517,819 cubic feet.

As is the case throughout the West Indies, a great many different kinds of trees grow together in the same forest. There are commonly from thirty to sixty different kinds of trees on one acre of land and sometimes more, but in different districts of British Guiana certain trees predominate and give character and name to the forest although they do not monopolize it. Thus there are greenheart forests, crabwood forests, wallaba forests and mora forests. For instance, in a wallaba forest where the trees over 18 inches in girth were counted over a considerable area by the government forester, there were about 53 wallaba trees to the acre and small numbers of each of thirty other kinds of trees over 18 inches in girth, besides great numbers of smaller trees. In a greenheart forest estimated to contain on an average 151 timber trees to the acre, thirty-two were greenheart, while there were seventy-three other kinds of trees in small numbers, the only trees counted being those not less than 18 inches girth.

REMARKABLE RECORD OF GREENHEART.

British Guiana greenheart has a high reputation wherever timber is required for submerged work, such as wharves, piles, dock and lock gates, owing to its extraordinary freedom from decay and its immunity from attacks of the *toredo*, said to be due to the presence in the wood of an alkaloid called biberine and resinous substances known as tyloses. It has been described as "clean and straight in the grain, free from knots, very hard and heavy, tough, strong and elastic, so unaffected by time and weather that it seems almost imperishable."

Greenheart has been very extensively used in canal and harbour works in England and Scotland, in the Suez canal and in the dykes of Holland. It was used for all the gates, piers and jetties of the Liverpool docks and the fifty lock gates in the Manchester ship canal. Mr. Henry W. Hunter, the chief engineer of the Manchester ship canal, in his report to the Ninth International Congress of Navigation at Dusseldorf in 1902, said that it appeared impossible to fix a limit to the durability of greenheart, and that the only element limiting the age was the iron of the bolts and other fastenings which were usually renewed without serious difficulty. Some years ago the chief engineer of the Suez canal made a very favourable report on greenheart as compared with other woods.

On December 6, 1913, Mr. Alfred Chandler, General Manager and Secretary to the Mersey Docks and Harbour Board, Liverpool, England, wrote to Sprotons Limited, Georgetown, British Guiana as follows:—

"I may say that greenheart has been used in the construction of dock gates at this port for all widths of entrance up to 100 feet, the principal reasons for its adoption being its great strength and the fact that it is not subject to attack by sea creatures. It is also much used in the Liverpool locks for the platforms of bridges and in many other positions where great strength is required."

Greenheart is also used for trestles, bridges, shipping platforms, staging, mill-work, cellar flaps, flooring, wagons, carriage shafts and fishing rods. In British Guiana it is in demand as a furniture wood. In shipbuilding it is extensively used for keelsons, engine bearers, beams, shell pieces and for planking. It was largely used in the construction of Nansen's ship *The Fram*, and the Antarctic ship *Discovery*.

Greenheart is also used for trestles, bridges, shipping platforms, staging, mill-tested under all kinds of conditions.

Logs of greenheart can be obtained from 10 to 25 inches square and up to 65 feet in length.

As greenheart is too heavy to be floated down the rivers in rafts it is transported by what are known as "sling punts." Two logs of greenheart are laid across the punt on its gunwale and other logs are slung from these under water. The greenheart logs that are to be transported are then rested on the logs that are slung under water and in this way the punts are enabled to keep afloat three or four times the quantity of wood that would immerse them to the gunwale if it had been loaded inside. A roof of palm leaves is erected over the punt and the men in charge live under this roof for weeks at a time, very often with their wives and children sleeping in hammocks.

SURINAM GREENHEART AN INFERIOR WOOD.

The reputation of greenheart has unfortunately suffered in certain quarters through the sale of a wood from Dutch Guiana which somewhat resembles it in appearance and is called Surinam greenheart. As a matter of fact it belongs to an altogether different species and has not the durable and toredo resisting qualities characteristic of real greenheart. The scientific name of the British Guiana greenheart is *Noctandra Rodioci*, while the so-called Surinam "greenheart" is scientifically known as *Tecoma Araliacea*. The two woods were tried side by side in the dykes of Holland as the Dutch government naturally preferred to use timber from a Dutch colony if as good as that from a British colony. When the wood was taken out the Surinam "greenheart" was found full of toredo holes, while the British Guiana greenheart was in perfect condition.

MORA QUITE PLENTIFUL.

Mora is another wood of which large quantities are obtainable, Mora is hard, tough, strong, close-grained, very durable and weighs about 65 pounds per cubic foot. It is used for boards, scantlings, beams, railway sleepers, telegraph and telephone posts and many other purposes.

BULLET WOOD NO LONGER EXPORTED.

The wood of the bullet or balata tree has been described as very hard, heavy and dense of a moderately fine grain, varying in colour from a reddish tinge to a deep red. The largest logs are about 80 feet long, squaring over 40 inches. It was formerly sold on the English market under the name of "beefwood" owing to its colour, but now owing to the government regulations prohibiting the cutting of balata trees none of the wood is exported.

CRABWOOD LIKE MAHOGANY.

Crabwood is widely distributed in British Guiana throughout the river valleys. There are two varieties, red and white with similar characteristics generally, but the white variety is much lighter than the red. Red crabwood resembles Mexican mahogany in appearance and is sometimes called Demerara mahogany. Logs of

crabwood can be obtained from 40 to 60 feet long and from 8 to 16 inches square. It is extensively used in the colony for building purposes and there is a considerable local demand for it in the manufacture of furniture.

WALLABA SHINGLES.

Wallaba is a heavy hard wood in great demand locally for posts and for making shingles, palings, vat staves, etc., as well as for firewood. Exports of wallaba shingles to the British West Indies, Dutch Guiana and the Dutch West Indies amounted to 2,045,550 during the calendar year 1913.

PURPLE HEART, A LOVELY FURNITURE WOOD.

British Guiana has many other beautiful hardwoods, but the number to the acre in the mixed forests is not very great. One of the most beautiful woods for furniture making and interior woodwork of buildings is known as purple heart. It is a hard, heavy, close, tough and durable wood of a dark purple colour.

WOOD FOR PULP MAKING.

While there are some trees of immense size in British Guiana forests, Mr. G. S. Jenman, late government botanist said: "What strikes one generally in these forests is the fewness of trees say with stems upwards of a foot in diameter, compared to the large number of smaller ones. Standing in any place perhaps a dozen or two dozen trees of the kind mentioned might be counted over the limited space one can scan, while the smaller ones are in hundreds often, and not unfrequently so dense as to greatly impede walking."

It would be interesting to have the opinion of a paper manufacturing expert as to whether these vast numbers of small trees would be suitable for the manufacture of wood pulp. There are waterfalls and rapids everywhere in the highlands of British Guiana so that electric power could be very cheaply generated and there would never be trouble with ice.

Chapter XVIII.

TRINIDAD AND TOBAGO.

Any one familiar with the West Indies and the Spanish Main will at once recognize the island of Tobago from Defoe's description of Robinson Crusoe's island. This is the only island from which Trinidad could be seen in the distance. Defoe spelled the name of the River Orinoco somewhat differently from the present spelling, but there is no mistaking the geographical situation. Tobago lies between $11^{\circ} 9'$ and $11^{\circ} 21'$ north latitude, bearing the same relation to Trinidad as Robinson Crusoe's island.

The two islands described by Robinson Crusoe form to-day the prosperous colony of Trinidad and Tobago, being united under one Government although separated by about 21 miles of sea. Lying directly in front of the delta of Venezuela's great river they have been called the Daughters of the Orinoco. Trinidad lies between $10^{\circ} 3'$ and $10^{\circ} 50'$ north latitude, and is only 6 miles from Venezuela at its nearest point. Trinidad is 55 miles long and 40 miles broad, being almost square in shape but for the peninsulas at its northwest and southwest corners, which stretching out toward Venezuela help to enclose the Gulf of Paria. It has an area of about 1,190,484 acres, or a fraction over 1,800 square miles, while Tobago is 26 miles long by $7\frac{1}{2}$ miles wide at its greatest breadth, and has an area of 73,313 acres or a fraction over 114 square miles. Nearly the whole area of these islands is suitable for agriculture. The soil is rich, the rainfall generally abundant and the climate equable, while both islands are absolutely free from earthquakes and hurricanes. At Port of Spain, the capital and chief seaport, the temperature usually ranges from about 70° deg. F. at dawn to 86 or 87° deg. between two and three in the afternoon, dropping after that hour, but from January to March the night temperature often drops to about 65° degrees. The mean maximum temperature is 86° , the mean minimum 69° , and the mean annual 79° . In the highlands it is slightly cooler. In the hottest hours of the day the trade wind is usually blowing, greatly tempering the heat.

There are three ranges of hills, one fringing the north coast, one near the south coast and the third between, but the general character of the country is level or undulating. The highest point in the island is Mount Tuchuche, 3,100 feet high, in the northern range.

Although British Guiana has more than forty-five times the combined area of Trinidad and Tobago, the population of the two islands in 1911 was 333,552 as compared with 296,041 in the British colony on the mainland of South America. The visitor to British Guiana gets the impression of a great country marking time—a country with rich natural resources that are not being developed to any great extent. In Trinidad one sees a small country that is being rapidly developed.

Trinidad and Tobago together have less than half the area of Jamaica and less than half its population, but in 1913 the total trade of Trinidad and Tobago amounted to \$48,835,358, whereas the total trade of Jamaica and its dependencies the Turks, Caicos and Cayman Islands amounted to only \$25,284,735. As explained in the first chapter of this report Trinidad's trade is largely due to the fact that Port of Spain is a distributing port for Venezuela, but Trinidad's imports for home consumption and its exports of domestic products are much larger in proportion to area and population than those of Jamaica.

THE PRINCIPAL EXPORTS.

Trinidad and Tobago grow almost every kind of tropical products, but the only agricultural products exported in considerable quantities are cacao, coconuts, copra, sugar, molasses, rum and fruits, the exports of which in the calendar year 1913, were as follows:

Articles.	Quantity.	Value.
Cacao.	Lbs. 48,116,377	\$ 6,735,825
Coconuts.	Nuts 16,390,897	409,771
Copra.	Lbs. 1,154,539	55,416
Fruit.		56,611
Molasses.	Gal. 339,496	20,366
Rum.	" 102,323	51,153
Sugar.	Lbs. 73,147,200	2,006,721

It should be noted that in Trinidad as in British Guiana, large quantities of coconuts are consumed in the colony, being used both for food and for the manufacture of coconut oil which is used very generally by the East Indians, so that the total production of coconuts is considerably greater than the number exported.

When coconuts are shelled and the hard white meat broken into fragments these pieces are called copra. Many coconuts a little too small to sell as standard nuts are broken into copra.

The exports of sugar, cacao, coconuts and coffee would have been larger but the production was lessened by drought. When the young trees planted in recent years come into bearing the exports will be considerably increased.

The ordinary conditions of climate, soil and rainfall seem to be ideal in Trinidad for the production of cacao, but there is great room for improvement in the methods of preparing the cacao for market adopted by some of the small peasant proprietors.

Comparatively few fruit trees are planted in this colony because there is a general belief that there is no export market. However, a good deal of fruit is grown for local consumption and one can buy cheaply anywhere oranges, grape fruit, limes, pineapples, avocado pears, mangoes, papaws and a variety of other tropical fruits that are seldom seen in the north. Last year 472,386 oranges were exported. A small banana locally called the "sucre fig," is grown between young cacao trees on many small estates, 72,311 packages valued at \$43,584 being exported to the United Kingdom in the calendar year 1913.

Rice is grown by many of the East Indians but not in sufficient quantities to supply the home market, for 18,229,738 pounds were imported last year although 20,160 pounds of Trinidad rice were exported to Germany.

Coffee grows well in Trinidad, but the greater part of the coffee produced is consumed in the colony. The exports of coffee only amounted to 2,250 pounds last year, while 260,168 pounds of coffee were imported.

RUBBER IN TRINIDAD.

The planting of rubber trees got a somewhat earlier start in Trinidad than in British Guiana and there are now a larger number of trees old enough to be tapped. Last year Trinidad exported 6,454 pounds of rubber compared with 1,340 pounds exported by British Guiana, but the mainland colony has already a larger number of rubber trees planted and there is little doubt that British Guiana will soon far surpass Trinidad in rubber production. The cacao tree is generally believed to require protection from the sun and a tree known as the immortal is commonly used for this purpose, but in some cases rubber trees are now being used and the custom may extend. An East Indian on a cacao estate in Trinidad which I visited said:—

"The cacao tree is like a white man. It requires an umbrella to shade it from the sun."

Against the use of the rubber tree as shade for the cacao it is sometimes argued that both the cacao and the rubber require nourishment from the soil and that the one interferes with the other, whereas it is claimed the immortal blossoms contain large quantities of nitrogen and that when the blossoms fall and decay as much nitrogen is restored to the soil as the cacao takes from it. Whether the nitrogen comes from the air or from the depths of the subsoil is a disputed question, but in any case it is made available for the nourishment of the cacao tree according to the advocates of the immortal. In Trinidad the Castillon rubber of Central America has been more generally planted than Para rubber.

There are three articles besides agricultural products which bulk quite largely in the exports of domestic products, asphalt, petroleum and bitters, the quantities and values being as follows:—

Article.	Quantities.	Value.
Asphalt, crude..Lbs.	418,868,800	\$ 920,275
Asphalt, epuré.."	43,503,040	186,436
Bitters..Gal.	82,234	154,733
Petroleum, crude.. . . . "	13,570,152	360,096

As regards the bitters it may be noted that a Venezuelan family many years ago placed on the market a preparation of bitters which has become world famous. Times being troublesome in Venezuela they moved to Trinidad and have since manufactured in Port of Spain the bitters which are so largely exported.

TRINIDAD ASPHALT.

Trinidad has been more widely advertised by its exports of asphalt than by all the sugar, cacao, coconuts and coffee ever produced in the island. Trinidad asphalt is known in all the cities of the world as a fine paving material and the Pitch lake, La Brea, is one of the world's wonders. It covers 104 acres and is estimated to contain about 9,000,000 tons of asphalt, over 1,500,000 tons having already been taken out. Epuré is asphalt from which all the water of which it contains about 25 per cent, has been eliminated by heat. Small quantities of manjak are also mined in Trinidad. This is a black, solid, friable bitumen.

PETROLEUM IN GREAT QUANTITIES.

It is generally believed in Trinidad that the petroleum underneath the island may yet prove to be its richest resource. It is an interesting fact that the man who is recognized by everyone to have been responsible for the discovery of Trinidad's oil resources is Mr. Randolph Rust, who for a number of years was a resident of a Canadian city, Hamilton, Ont. Mr. Rust, believing that all the conditions indicated that there were great stores of petroleum in Trinidad, persuaded the government of the colony to have an investigation made by an expert geologist, and Mr. E. H. Cunningham Craig was chosen to make the inquiry. It may be noted that Mr. Cunningham Craig's book "Oil-Finding" has been highly commended by Sir Boverton Redwood, adviser on petroleum to the British admiralty, home office and Indian office, and consulting adviser to the colonial office. He began his investigation as a skeptic but after a thorough inquiry became an enthusiastic believer in Trinidad as a great oil field. He reported that the island was an immense storehouse of oil. A considerable amount of British capital has since been invested and great developments are expected in the near future. Mr. A. Buby Thompson, a well-known mining engineer who assisted Mr. Craig, recently said: "If we consider that there are only 100 square miles of oil-bearing land in the island which will ultimately yield on an average but 1,000 tons per acre—a very low estimate where there is a succession of sands at different depths—we arrive at an output which if value¹ at only £1 per ton equals £64,000,000."

However, both Mr. Craig and Mr. Thompson believe that the oil-bearing lands that can be profitably utilized cover a far greater area than 100 square miles. It is believed that in many cases lands now yielding good profits from cacao plantations have oil enough underneath to make fortunes for the owners. For instance, while I was in Trinidad a group of British capitalists bought the oil rights on a cacao estate which I visited. The owner of the estate retains his surface rights and his cacao trees which yield a fine revenue, but he was paid \$25,000 cash in addition to a large amount of stock in the oil company for the oil rights underneath. With wealth above and wealth beneath Trinidad should be prosperous.

OIL UNDER CROWN LANDS.

A large area of the Crown lands of Trinidad are supposed to have oil underneath and in order to prevent complications the government has temporarily withdrawn these lands from settlement. There are estimated to be about 400,000 acres of Crown lands suitable for agriculture. The East Indians have been buying small allotments of from five to ten acres and there is a great deal of dissatisfaction among some of those who have not yet got land at the temporary withdrawal of the Crown lands from sale.

THE PRESENT OIL DEVELOPMENT.

I am indebted to Mr. P. Stephens, Inspector of Mines, for the following information regarding the present condition of oil development in Trinidad.

"During the past year 41 oil wells were drilled and in 18 of these oil was struck. The average output of oil at the present time is about 3,725,000 imperial gallons per month. The quality of the oil varies greatly in the various parts of the island where it has been won, that in the La Brea district being of a heavy asphaltic nature, whilst in other parts of the colony an oil containing up to 75 per cent of products volatile at 300° C. is being produced. The specific gravities vary from .960 to .780. Four refineries are at present being worked in the colony and an average quantity of about 167,000 gallons of crude oil is now being treated monthly. About 1,500,000 gallons of oil are now being exported monthly, mostly in the crude state, though small quantities of refined oil are being shipped, chiefly in the form of motor spirit. The heavier grades of crude oil have been found to be quite suitable for use as fuel in steamships and a number of ships have been bunkered with locally produced oil."

If the expectations of the oil experts are fully realized the strategic importance of Trinidad will be greatly increased. Oil is being substituted for coal as steamship fuel more and more and both as regards warships and merchant vessels Trinidad may become the most important oil supply station in the southern seas.

The British government have been so impressed with the importance of Trinidad oil from a naval point of view that the Government of Trinidad has been instructed not to sell any more oil rights to aliens.

It has been predicted that the oil royalties will eventually yield enough revenue to cover nearly the whole cost of Government in Trinidad.

MUD VOLCANOES.

While Trinidad never has earthquakes or hurricanes it has a number of mud volcanoes which caused some alarm until their nature was discovered. They are simply the result of explosions of hydro carbon gas arising from petroleum. On one of the sugar estates in the Cedros district there is a mud volcano which sometimes explodes with great noise throwing up tons of oil saturated clay. Several years ago a small island was suddenly born in the sea off the coast of Trinidad. The governor of the colony with a party visited this new British possession and landed a few days after it was formed. Experts stated that it was simply the result of an upheaval of mud at the bottom of the sea caused by an explosion of petroleum gas. The island afterward disappeared under the ocean.

TRINIDAD FORESTS.

About 200,000 acres of Crown lands have been reserved for forests, leaving about 400,000 acres of Crown lands estimated to be suitable for agriculture, an area almost as great as that at present actually cultivated.

The forests of Trinidad, like those of British Guiana and all the other West India islands, are mixed, only a few trees of the same kind being found together. It is proposed to gradually cut down the trees of little commercial value and replace them with valuable timber trees. Certain burned areas are being replanted with young forest trees in plantations of the same kind. Thus there are 10,120 cedar trees growing together in one plantation and in another plantation 11,315 cyp trees. There are small separate plantations of mahogany, Honduras mahogany, balata, Para rubber, camphor and poui trees.

It is not expected that important results will be achieved in the near future other than the conservation of the forests as a means of maintaining rainfall, but it is believed that within fifty years the government will have valuable forests of hardwood which will yield a large annual revenue.

TRINIDAD RAILWAY LINES.

Trinidad has a government railway connecting Port of Spain with the principal towns and villages of the island. Some of the large sugar estates have private railways to carry the canes from the fields to the factories. These private railways are connected with the government railway so that when the sugar is made it can be transported to the nearest shipping point.

GOOD COUNTRY ROADS.

The visitor to Trinidad will have no difficulty in seeing the island for there are many good country roads lined with trees and hedges. The scenery is lovely. In some cases the roads are covered with a coating of asphaltic oil; in other cases the clay of the island is burned in kilns making a hard red powder which is spread over the roadways.

THE ISLAND OF TOBAGO.

The island of Tobago is not so well developed as Trinidad, but it is rich in natural resources and its scenery is lovely. Its physical characteristics have been described by Lieut. Col. J. H. Collens, of Trinidad, as follows: "From Pigeon Hill (1,800 feet high) at the northeast, a main ridge of hills runs down the centre of the island for about eighteen miles, with long, deep valleys separated by bold subdivided spurs. These valleys are extremely fertile and well watered. The central portion is undulating with little valleys, while the southwestern or Leeward district is flat."

Tobago was formerly devoted entirely to sugar growing, but cacao, coconuts and rubber are being substituted. Rubber trees are doing particularly well in the northern part of the island. One of the planters, Mr. Thomas Thornton, by crossing sea island cotton with the ordinary type of native cotton, has obtained a hybrid which yields well and has been approved by cotton experts in England.

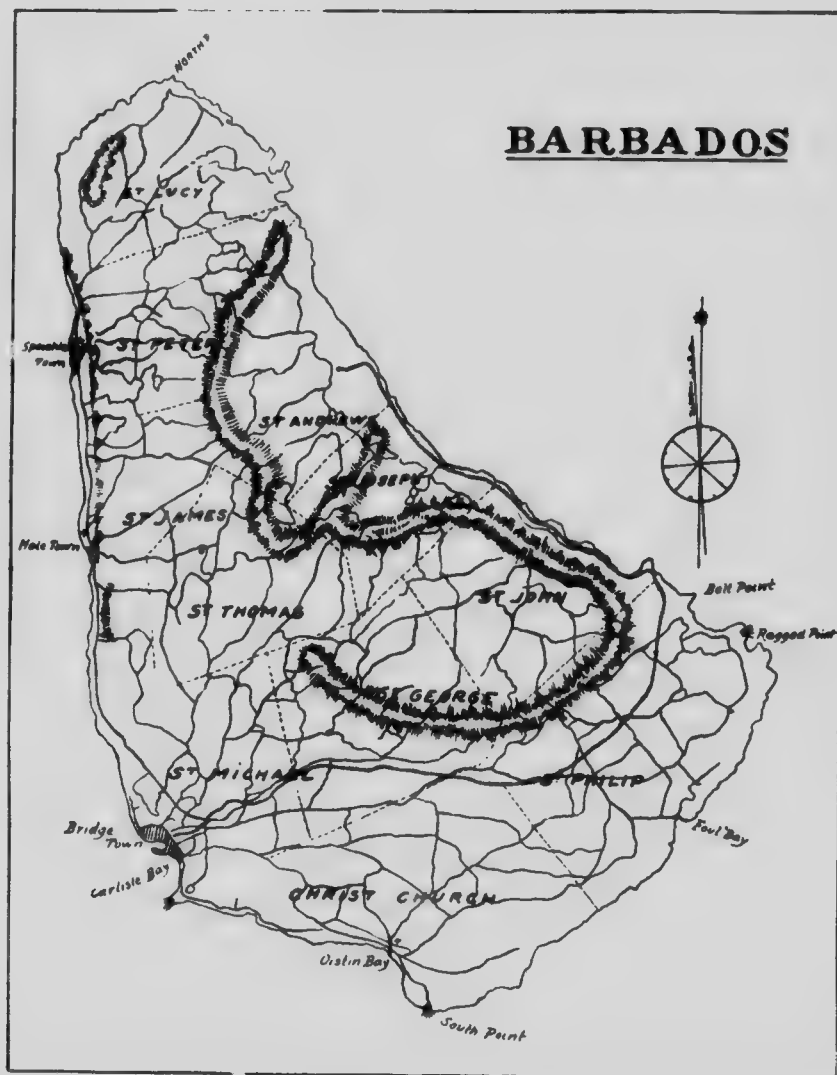
Mr. Cunningham Craig says there are indications of a good supply of petroleum in Tobago. There are still thousands of acres of Crown lands for sale in Tobago at twelve dollars per acre, but, as in the case of all tropical countries, the cost of clearing forest lands is heavy.



Cacao tree pods. The pods contain the beans from which cocoa and chocolate are made.



Sugar cane in arrow, Barbados.



Chapter XIX.

THE ISLAND OF BARBADOS.

Barbados, lying in $13^{\circ} 4'$ north latitude and $59^{\circ} 37'$ west longitude, is nearer to England than any of the other West Indian islands and it is the most English of them all. It is 21 miles long, $14\frac{1}{2}$ mile wide at its broadest point and has an area of $166\frac{1}{2}$ square miles or 106,560 acres. A very small percentage of the area of the island is unsuitable for cultivation and almost every available acre is cultivated. There are no Crown lands.

Barbados looks flatter than any other West Indian island yet it is not really flat, for although there are no high mountains the land slopes up very gently and gradually from the sea coast to a range of hills from 1,000 to 1,100 feet high in the centre of the island. In the Scotland district at the north-east of the island the hills run nearer to the sea coast and the descent from hill to sea is steeper, so that the scenery is more rugged and picturesque than in any other part of the island. This part of the sea coast is known as Bathsheba.

The gentle slope of Barbados from the elevated centre to the sea provides a natural system of drainage and the porous character of the coral limestone soil prevents the accumulation of stagnant water anywhere. There are no swamps and the Trade Winds blowing steadily across the island give every part of it the benefit of pure sea breezes. The island is said to be absolutely free from the malaria mosquito, scientifically known as the anopheline.

The temperature is much the same all the year around, ranging usually from 70° to 86° F. in Bridgetown. In the cooler months from December to May the temperature sometimes registers as low as 63° F. at night. The more elevated parts of the island are slightly cooler than Bridgetown. The average annual rainfall for a period of sixty years was 62.48 inches. The wet season usually lasts from the beginning of June to about the end of October, the remaining months being comparatively dry.

It is a remarkable fact that in all the colonies from British Guiana to St. Kitts complimentary remarks about Barbados and the Barbadian people are heard. The traveller who visits the other colonies before going to Barbados will learn before setting foot on the island that it has the reputation of being most healthy, that there has never been a case of malaria in the whole island and that it is consequently a health resort for British Guiana, Trinidad and even Venezuela and Brazil. He will be told that the Barbadian black man is the best labourer in the West Indies. Barbadians try to live up to their reputation. Every man of them, white, coloured and black, and every woman and child is proud of the tight little island. One hears fewer complaints of labour difficulties in this island than in any other West Indian colony. Almost every man in the rural districts is a worker. In Bridgetown where labour conditions fluctuate with the shipping season the black people are not so steadily employed.

Barbados has more agriculturists to the square mile than any other country in the world. There are equal areas on the face of the earth more densely populated, but they are cities. Barbados is a great farm, practically the whole population of the colony being engaged in agriculture excepting about 35,000 people living in the city and suburbs of Bridgetown, and at some seasons of the year considerable numbers of labourers go out from Bridgetown itself to work on the sugar estates or in the sugar factories on the estates.

BARBADOS. MOLASSES.

Barbados is pre-eminently a sugar island and is certain to remain so. The soil and climate are particularly suited to sugar cane and the labour conditions so favourable that Barbados should be able to compete successfully with any other cane sugar producing country. The juice of the Barbados sugar cane is said to be sweeter than that of any other colony except Antigua. This is attributed to the lime in the soil which is of coral origin.

But in thinking of Barbados as a sugar country you must give a broad interpretation to the word "sugar," including all the products of the sugar cane, for Barbados exports more molasses than sugar, besides small quantities of rum.

During the calendar years 1912 and 1913 respectively the exports of sugar, molasses and rum produced in Barbados were as follows:

1912.

	Quantity.	Value.
Muscovado sugar.....	15,901 hhds.	\$767,568 00
Yellow crystals sugar.....	75 "	3,686 40
White crystals sugar.....	5 "	302 40
Succades.....		148 80
Choice molasses.....	2,366,190 gals.	392,347 20
Fancy molasses.....	6,990,830 "	1,449,004 80
Rum.....	3,574 "	1,420 80

1913.

	Quantity.	Value.
Muscovado sugar.....	5,612 hhds.	\$190,579 20
Yellow crystals sugar.....	4,797½ "	201,499 20
White crystals sugar.....	856 "	43,142 40
Succades.....		254 50
Choice molasses.....	946,880 gals.	179,904 00
Fancy molasses.....	8,139,120 "	1,627,824 00
Rum.....	7,963 "	2,870 40

The exports were less in 1913 than in 1912 because of the drought. Thus the total value of sugar exports was \$435,220.80 in 1913 and \$771,705.60 in 1912, while the molasses exports were valued at \$1,841,352 in 1912 and \$1,807,728 in 1913. What is called "choice" molasses is really muscovado molasses, a by-product of the manufacture of muscovado sugar, while "fancy" molasses is the product when the juice of the sugar cane is converted directly into molasses without any part of the saccharine contents being used for sugar making. The old-fashioned muscovado process of sugar making in which the boiling takes place in open pans instead of vacuum pans leaves a very fine quality of molasses, for a considerable proportion of the saccharine remains in the molasses, whereas by the more modern vacuum pan processes nearly the whole of the saccharine contents go to make sugar, leaving as a residuum a very poor quality of molasses containing all the impurities of the cane, which in sugar cane countries is commonly called "black strap."

In the modern sugar factories of British Guiana, Trinidad, Antigua and St. Kitts, where practically all the saccharine contents of the cane juice are extracted

in sugar-making, the disposal of the "black strap" molasses is a problem. They certainly should not be encouraged to ship it to Canada for human food. It is used to some extent as a cattle food, being mixed with the megass, as the crushed cane is called after the juice is extracted. "Black strap" is also put to good use in the manufacture of shoe blacking in England.

One planter, in conversation with me, expressed the opinion that the best way to dispose of "black strap" would be to mix it with artificial manures and restore it to the soil.

LAW AGAINST MIXING MOLASSES.

Referring to a statement that had been made that "black strap" is being chemically treated in Canada and sold to Canadians as high grade syrup, Sir Leslie Probyn, Governor of Barbados, said to me:

"That 'black strap' molasses is not fit for human food, and it seems to me that the Canadian government should let the people know what they are buying as syrup or molasses. Nearly every civilized country now has its pure food laws, and I think the Canadian government should compel those manufacturers who treat 'black strap' molasses in such a way as to give it the appearance of high grade syrup to so mark their product that any purchaser will know what he is getting. I am sure that if Canadians in general knew the nature of the 'black strap' molasses they would not think it fit for human food. I understand that even the working classes in Canada insist upon having the highest quality of meat and even the choicest cuts. Why, then, should they be willing to buy molasses which at best is fit for nothing but cattle food. We in Barbados are very careful to prevent inferior molasses being exported as high grade, and we have very strict laws to prevent the mixing of molasses. I may call your attention to the Barbados Molasses Mixing Prohibition Act enacted in 1912, which provides that any one responsible for mixing fancy or muscovado molasses with vacuum pan molasses with intent that the same may be sold or exported in that state, or any one who sells or exports any fancy or muscovado molasses so mixed shall be liable to a penalty not exceeding one hundred pounds for the first offence and for the second or any subsequent offence shall be liable on summary conviction to be imprisoned for a period not exceeding six months with or without hard labour."

An exporter of molasses of Barbados said to me: "If Canadians in general knew the real merits of the various kinds of syrups and molasses we could discontinue the manufacture of sugar altogether in Barbados and turn all our cane juice into fancy molasses, for we could sell all our 'fancy molasses' we can produce in Barbados, but it would be necessary to prevent imitations being sold as 'Barbados fancy.'"

During the shipping season the wharves and all vacant spaces near them are full of barrels of molasses.

Although Barbados continues to manufacture muscovado sugar in larger quantities than any other colony, quite a number of the estates have introduced modern machinery and are now making what are called "dark crystals," which contain a higher percentage of saccharine than muscovado. This sugar, as well as most of the muscovado, goes to Canadian sugar refineries. The "dark crystals," of course, command a higher price at the refineries than the muscovado because they contain a higher percentage of saccharine, but the molasses is inferior. It is this inferior molasses which the Barbados Molasses Mixing Prohibition Act is directed against. Some of the muscovado goes into consumption as grocery sugar.

SETTING THE WIND TO WORK.

There are 205 sugar works run by windmills, which can usually be depended upon owing to the steady blowing of the trade winds.

Although the wind is usually a good friend to the Barbadians, tempering the climate and operating the sugar works, it occasionally becomes malicious and vents its fury in a destructive hurricane, but serious hurricanes are of very rare occurrence and come many years apart. The average velocity of the wind per hour is ten miles.

There are nearly 10,000 peasant proprietors in Barbados owning five acres or less, the great majority having not more than half an acre. They usually work as labourers on the estates in addition to farming their little plots of land. It is stated that if a black man has as much as one acre of land he can make a living out of it. A large number also rent little plots of land from the big estates.

Barbadians produce more than enough tropical vegetables to supply their own wants and export some to Trinidad.

Sea island cotton is successfully grown, and 422,000 pounds of raw cotton were exported during the calendar year 1913.

Fruit trees do not appear to thrive very well in Barbados, although a little fruit is grown for local consumption. I was told by planters that the wind was a little too strong for fruit trees. However, Mr. J. R. Bovell, Superintendent of Agriculture, thinks that more fruit trees might be planted advantageously. He told me of an experiment in banana growing made some years ago. "The industry gave great promise of success," said Mr. Bovell, "and the export of bananas to the United Kingdom was put on what appeared to be a stable basis, the bunches shipped in the cold storage of the Royal Mail steamers arriving in England in good condition and invariably bringing good prices, but at the end of July, 1905, the Royal Mail began to receive bananas in such quantities from Trinidad that all the cold storage was occupied by this fruit, and the bananas from Barbados had to be put in other parts of the vessel, with the result that from October, 1905, to March, 1906, of the 10,000 bunches shipped so many rotted on the voyage that they only realized 2d. per bunch, while the cost of crates, packing, etc., amounted to 1s. 2d. per bunch, so that the planters besides losing their bananas lost 1s. on each bunch. The result was that they discontinued shipping bananas and destroyed their plants."

INDICATIONS OF PETROLEUM.

There are indications of petroleum in Barbados, and experts have expressed the opinion that it may yet be discovered in large quantities, but no active measures appear to have been taken to investigate and no wells have been drilled. Manjak of very high quality has been mined for some years. It is exported to the United States, where it is used in the manufacture of varnish.

There is a government railway 24 miles in length running from Bridgetown to St. Andrew's at the northeast end of the island.



Roseau, Island of Dominica.



George's, Island of Grenada.



A cartload of sugar cane, Antigua.



A cartload of lime Dominica.



Basseterre, Island of St. Kitts.



Plymouth, Island of Montserrat.

Chapter XX.

THE WINDWARD AND LEEWARD ISLANDS.

The Windward and Leeward islands might aptly be called the mountains of the sea, but they are mountains covered with everlasting verdure. Looked at from a distance it might be supposed that the hills were too steep for cultivation, but when one draws near the general slope is found to be more gentle than first sight indicates and further investigation shows that they can be economically utilized almost to the summits; even the mountain tops clothed in the original forest are of value in conserving the rainfall for the lower levels. Between the mountains are lovely valleys and the combination of hill and vale with views of the ocean from many outlooks makes the scenery entrancingly beautiful. Leaving Halifax on a Royal Mail steamer on January 2 we reached St. Kitts on the ninth day about 7.30 in the evening. In that zone of everlasting summer the night sweeps down suddenly a little after six o'clock, but the moon was shining high in the heavens and the beauty of a tropical night was all about when we first caught sight of this lovely island. Great masses of white clouds were banked on top of the mountains looking for all the world like snow. It was hard to believe that this was not a snow-capped mountain rising out of the sea. For twenty minutes the clouds seemed motionless and the illusion of snow banks remained. Then they moved a little, changed shape and soon floated away in fleecy loveliness.

As we continued on our way toward Trinidad calling at island after island of the Leeward and Windward groups it was difficult to say which one of them was most beautiful. There was constant wonder that scenery of such unrivalled beauty did not attract many thousands of northern tourists every winter. After visiting Trinidad and British Guiana I returned to investigate the economic conditions and closer acquaintance did not lessen the charm of the scenery while it greatly increased the belief in the commercial importance of these islands.

THE EFFECT OF ALTITUDE ON CLIMATE.

In considering the Leeward and Windward islands, either as a place of residence or in reference to their products, it must not be forgotten that the most southern of them, Grenada, is about 12° north of the equator and the most northern is nearly 19° north of the equator, but the mountainous character of the islands affects the climate to an even greater degree than difference of latitude. A difference of even a few hundred feet in altitude makes a difference in the temperature as registered by the thermometer and the higher levels are quite cool although even the highest mountains in these islands do not reach the frost line. In many cases owners of plantations in the lowlands have their homes in the highlands in order to take advantage of cooler atmosphere, but even in the lowlands there is nearly always a pleasant breeze blowing, for the trade winds are hardly ever idle. Occasionally there are violent windstorms, but destructive hurricanes come long years apart as do the earthquakes with which some of these islands have at times been afflicted.

The Windward group includes the islands of St. Lucia, St. Vincent, Grenada and the Grenadines which form a confederacy under a common governor, but with separate administrations. The term Leeward islands is used in two senses. Sometimes it includes the French, Dutch and Danish islands as well as the British. Sometimes it refers only to the British colony of the Leeward Islands which is a confederation

including the presidency of Dominica, the presidency of Montserrat, the presidency of Antigua with its dependencies Barbuda and Redonda; the presidency of St. Kitts and Nevis with their dependency Anguilla; and the presidency of the Virgin Islands. It is in this limited British sense that the term is used in this report.

The distances between the ports of call in these islands in nautical miles are as follows:—

	Nautical Miles.
St. Kitts to Antigua..	60
Antigua to Montserrat..	37
Montserrat to Dominica..	98
Dominica to St. Lucia..	83
St. Lucia to St. Vincent..	59
St. Vincent to Barbados..	105
Barbados to Grenada..	167
Grenada to Trinidad..	94

INDIVIDUALITY OF THE ISLANDS.

It might be supposed that all the Leeward and Windward islands being within the tropics and so near together would have the same products. In a limited sense this is true, but while all the tropical products can be grown in any one of these islands the conditions are very different. Each island has its own individuality not only from the standpoint of the tourist seeking new scenes of beauty, but also from the economic view-point of merchants buying tropical products or capitalists proposing to establish plantations.

The height and configuration of the mountains and their relation to the valleys as well as the extent of the forests have a remarkable influence on rainfall. Even in the same island one section may have a heavier annual rainfall than another and there is sometimes a striking difference in this regard between two islands quite near together.

Dominica, although belonging to the Leeward Islands colony, is in its characteristics more like the Windward islands. Dominica, St. Lucia, St. Vincent and Grenada all resemble each other in one respect; the lowlands are mostly valleys surrounded by mountains or narrow strips of land close to the sea with mountains towering above them. In Montserrat, Antigua and St. Kitts the mountains form a background for level and undulating land that slopes up from the sea. This is not absolutely true of every part of these islands, but it is the general characteristic and probably partly accounts for the difference in rainfall.

The Virgin islands, St. Kitts, Nevis, Antigua and Montserrat are dry islands compared with the wet islands of Dominica, St. Lucia, St. Vincent and Grenada.

THE VIRGIN ISLANDS.

As is the case with the Leeward islands, the term Virgin islands has two meanings, the broad one which includes the islands belonging to Britain, Denmark and the United States and the limited one which refers only to the 31 tiny islands comprised in the presidency of the Virgin Islands in the British colony of the Leeward Islands. The principal islands in this presidency are Tortola, Aneganda, Virgin Gorda, Jost Van Dyke, Peter's Island and Salt Island.

The Virgin islands, lying between 17° and 18° 50' north latitude, are the most northern of the British West Indian islands in the Preferential Trade Agreement, and are the coolest. Between the most southern point of British Guiana and the most northern point of the Virgin islands there is a difference of nearly nineteen degrees of latitude. These islands have not a large area of fertile land, but the climate is delightful.

The chief industries of the people are the raising of horses and cattle and fishing. Horses, cattle and fish are exported to the neighbouring islands. But the growing of Sea Island cotton is progressing.

ST. KITTS, NEVIS AND ANGUILLA.

The island of St. Kitts is 23 miles long, but is not very wide at any point, its total area being only 40,320 acres. A range of mountains runs along its length extending almost from end to end and reaching at one point a height of 3,771 feet. On both coasts there is level or undulating land between the mountain and the sea. There is a good road encircling the island of St. Kitts, with beautiful views of mountain, sea and plantations all the way. The soil is very fertile and sugar cane grows on the mountain slopes to a height of about 1,000 feet. Nevis, which is separated from St. Kitts by a shallow channel two miles wide, is a round cone-shaped island rising gradually from the sea to the altitude of 3,200 feet, the total area of the island being 32,000 acres. The latitude is 17° 14' N. Nevis is very fertile. Anguilla is a flat island having an area of 35 square miles, only part of which is fertile.

THE ISLAND OF ANTIGUA.

The island of Antigua, lying in 17° 6' north latitude, is 12 miles long from east to west and its greatest width from north to south is 9½ miles. It has an area of 69,275 acres, while the dependent islands of Barbuda and Redonda have respectively 39,080 acres and 320 acres. The southern part of Antigua is rather mountainous, the highest peak having an elevation of 1,300 feet, and there is a low range of hills in the north, while the central part of the island is generally level or undulating, but here and there in the level country rise up small round hills that remind one of the hills in the Newfoundlanders call "topsails," only they are softer in outline and more verdant. The rainfall is greater in the somewhat mountainous southern district than in other parts of the island, which is generally dry.

At an early stage in its history Antigua was entirely cleared of its forests, and a proposal to reforest the hills as a means of conserving rainfall is under consideration. Remarkable results have been achieved by reforestation of hilltops in the island of Carriacou in the Grenadines. Mahogany trees were planted on the hilltops. The mahogany grows quickly, and within twelve years there has been a decided increase in the registered rain fall. No conclusion could be drawn from the comparison of one year with another in that island as general conditions might affect the rainfall, but comparing the rainfall in Carriacou with the rainfall in the neighbouring island of Grenada in different years the government officials of Grenada are convinced that the reforestation of Carriacou hilltops has had a most beneficial effect on the rainfall.

The most picturesque part of Antigua is in the vicinity of English harbour, at the southeast, where there was a naval dockyard in the days when English Harbour was the chief British naval base in the West Indies. The docks and military buildings are still there, but the buildings are falling into decay.

Barbuda is 30 miles north of Antigua and Redonda 30 miles west.

THE ISLAND OF MONTSERRAT.

The island of Montserrat, lying in latitude 16° 45' N., is 11 miles long, and its greatest width is 7 miles. The area is 20,800 acres. While the rainfall is less than that of Dominica, St. Lucia, St. Vincent and Grenada it is greater than that of Antigua and St. Kitts. Although the island is so small the rainfall varies considerably at the 21 stations where records are kept. Taking the average of ten years there was a difference of 27.77 inches in the annual rainfall at the wettest and the driest stations of this little island.

Montserrat is a remarkably healthy island, and is said to be as free from malaria as Barbados.

THE ISLAND OF DOMINICA.

Dominica ranks third in size among the British West Indian islands, Jamaica being first and Trinidad second, while St. Lucia ranks fourth. Dominica lies in 15° 30' north latitude and 61° 20' west longitude, its situation being between the French islands of Martinique and Guadeloupe. It is 20 miles long, has a width of 16 miles at its widest point, and contains 104,982 acres. It is the most mountainous of all the British West Indian islands and the scenery is magnificent. A range of high mountains runs the full length of the island, divided in the centre where the island is widest by a valley known as the Layou Flats, through which flow two rivers running in opposite directions. The highest point in the island is Morne Diablotin, which reaches an altitude of 5,314 feet. Numerous spurs extend from the mountains to the sea enclosing fertile valleys through which flow little streams of water locally called rivers. The black people will tell you that there are 365 rivers in Dominica—one for each day of the year. There are certainly many streams. The rainfall is always abundant and the island is wonderfully fertile. I have seen plantations of limes and cacao high up on mountain sides. Lime trees are often planted in very steep places.

The attention of tourists is always called to three natural wonders, a fresh water lake in the mountains, 2,425 feet above sea level, a deep boiling lake on a mountain side 2,300 feet above sea level and boiling sulphur springs.

Nearly the whole of the interior is still covered with primeval forests of valuable hard woods. These forest lands are owned by the government and are offered for sale at \$2.50 per acre. The greatest hindrance to the development of Dominica is the lack of roads. This defect is likely to be soon remedied as a vigorous policy of road building is contemplated by the present administration.

THE ISLAND OF ST. LUCIA.

St. Lucia is in about 14° north latitude 24 miles southeast of the French island of Martinique. It is 27 miles long, 14 miles wide at its broadest point and has an area of 149,305 acres. Pigeon Island formerly an important military station lies off the northwest end of St. Lucia about 7 miles from Castries.

St. Lucia like Dominica is very mountainous, but the mountains are not quite so high and some of the valleys are broader. In many cases low hills branch out from the higher mountains and there are lovely little valleys between these mountain spurs. While the scenery of Dominica is magnificently grand, in St. Lucia there is a combination of grandeur and soft loveliness. Nearly every valley has its own little stream. Both valleys and hillsides are very fertile and the rainfall is abundant, but only a small part of the area suitable for cultivation is being utilized. There are considerable areas of forest covered Crown lands and private lands wholly or partially cleared of trees can be bought at moderate prices.

There are many mountain peaks in St. Lucia rising up above the general height of the mountains and they seem to have greater individuality than those of any other island. The highest is Morne Gimie, 3,145 feet, but there are a number of others nearly as high.

Rising sheer out of the sea near the harbour of Port Soufriere are two pyramids known as the Gros Piton and the Petit Piton, respectively 2,720 and 2,680 feet high, their steep sides being covered with verdure.

Then there is the Soufriere or sulphurous mountain about two miles back from the town of Port Soufriere, which from time immemorial has been in a state of constant but never violent activity.

THE ISLAND OF ST. VINCENT.

The island of St. Vincent lies a little north of 13° north latitude. It is 18 miles long, 11 miles wide at the greatest breadth and has an area of 96,192 acres. There are still some forest covered Crown lands suitable for agriculture when cleared but

the area that can be made available without encroaching upon forest reservations necessary for conservation of rainfall is not great. However the land in private hands suitable for cultivation is not nearly all utilized and there is room for great expansion in production. The soil is very fertile and the rainfall is nearly always ample.

While nearly the whole island is highly elevated and there are several mountain peaks rising to heights of nearly four thousand feet and one a little above four thousand feet a large proportion of the hills are not too abrupt for cultivation. I have heard St. Vincent called "a miniature Dominica." In one respect it is altogether unlike Dominica. While Dominica is almost without roads, St. Vincent has roads almost everywhere, winding, turning, up and down hill and around hills, revealing at every turn new scenes of beauty of land or sea. However, at the north end of the island there is a wide stretch of level country sloping gradually up from the sea to the mountains in the background. This was the richest and most highly developed portion of the island when the great Soufriere in the neighbouring mountain broke forth in violent eruption in May, 1902, and the streams of lava devastated the whole of this beautiful district destroying costly homes of planters as well as the humble cottages of labourers and killing thousands of people. Now after the lapse of twelve years the lava covered country is green and beautiful again and it is said to be more fertile than ever. Some of the abandoned plantations are being reoccupied. In one part of this district I saw many thousands of newly planted coconut trees. One of the planters said:—

"The last previous eruption of the volcano took place in 1812, that is 90 years before the one we experienced. These great convulsions never come near together and we can be pretty sure that there will not be another eruption for nearly one hundred years. In the meantime tropical products to the value of millions of pounds will be grown on these fertile lands and shipped to the markets of the world, chiefly to Canada if our preferential agreement turns out as successfully as we hope it will."

THE GRENADINES.

The Grenadines are a chain of about 100 small islands lying between St. Vincent and Grenada. Those north of Carriacou belong to St. Vincent and the others to Grenada. Bequia, the largest of the St. Vincent Grenadines, has an area of 4,422 acres. Carriacou, the largest of the Grenada Grenadines, has an area of 8,467 acres.

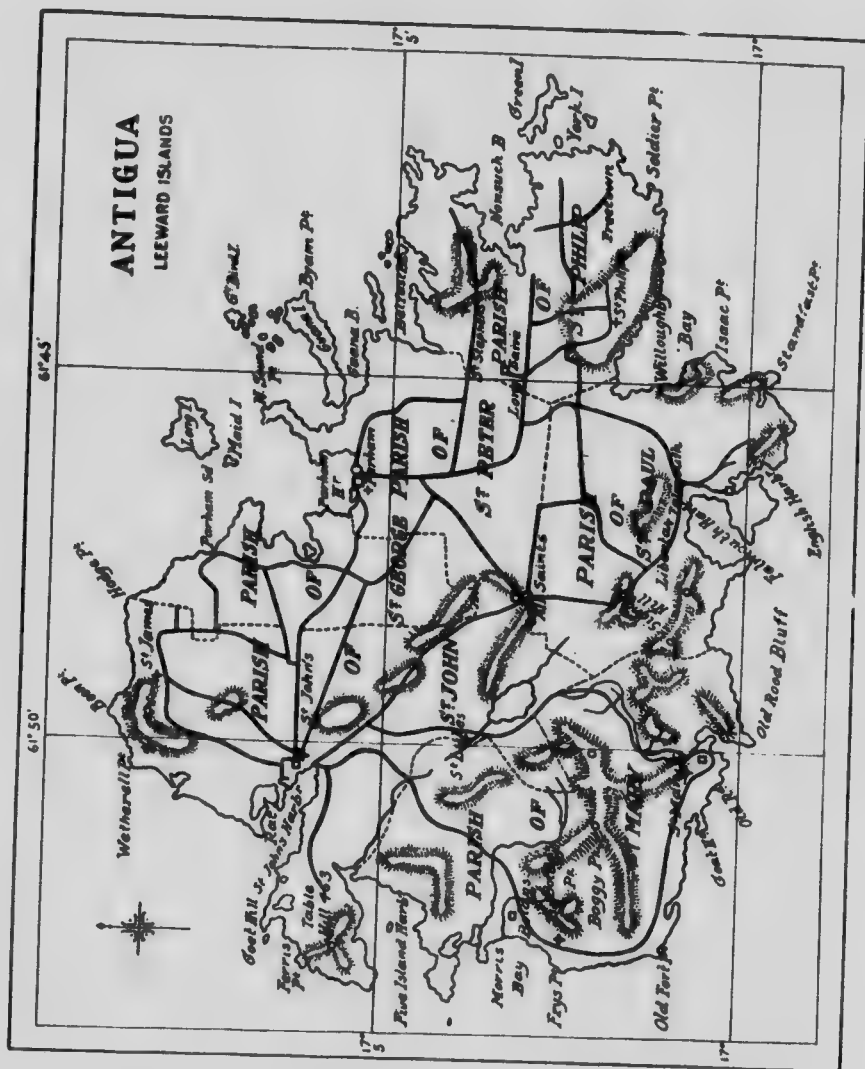
THE ISLAND OF GRENADA.

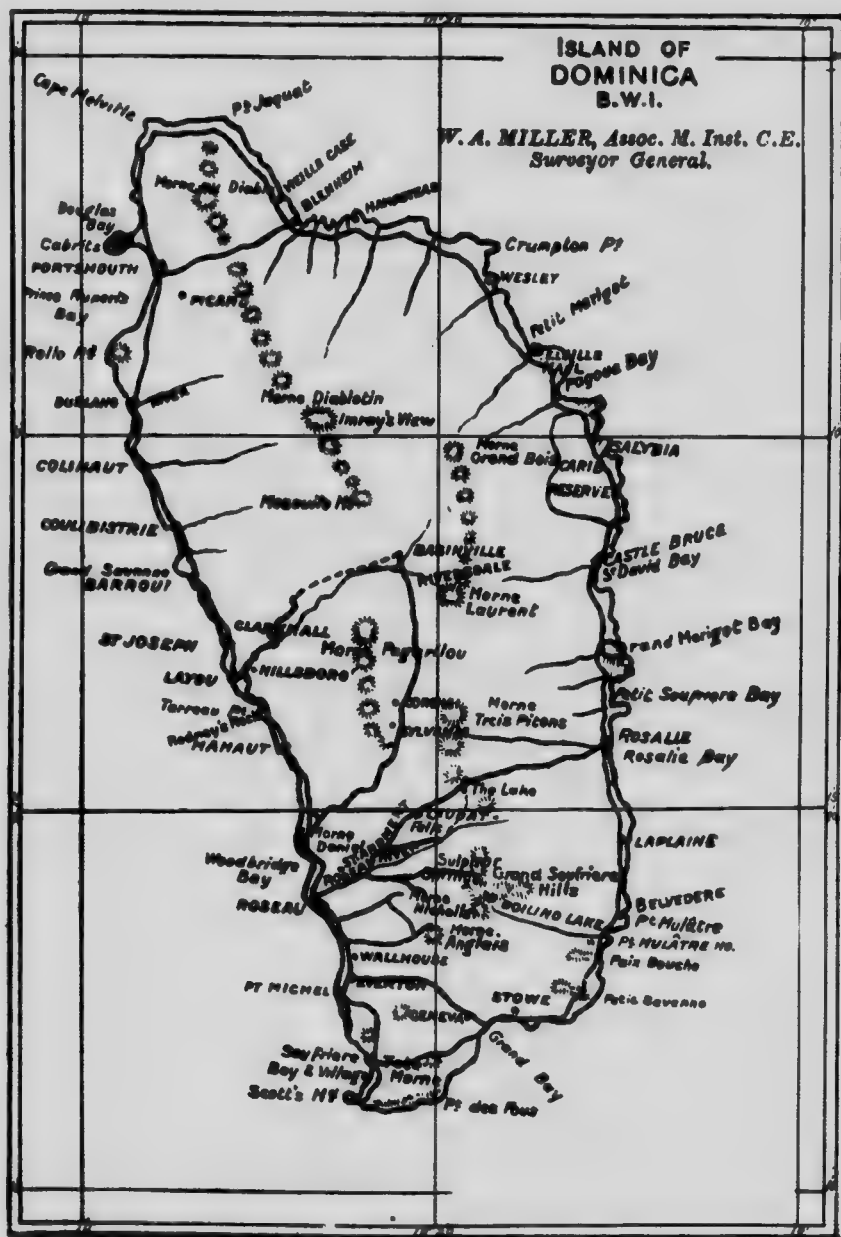
The island of Grenada lying between 11° 58' and 12° 15' north latitude is 21 miles long, 12 miles wide at its broadest point and has an area of 78,548 acres. As regards density of population Grenada and its Grenadine dependencies rank next to Barbados among the British West Indian islands, the population to the square mile being 502 as compared with 1,034 in Barbados. The colony is very prosperous and the peasantry perhaps more independent than those of any of the other islands owing to the large number of peasant proprietors. Grenada although mountainous is very fertile and is highly developed. Nearly 1,800 feet above sea level is a circular fresh water lake 13 acres in extent known as the Grand Etang. The highest elevation in the island is Mount Catharine, 2,750 feet high. There are many fresh water springs and several rivers.

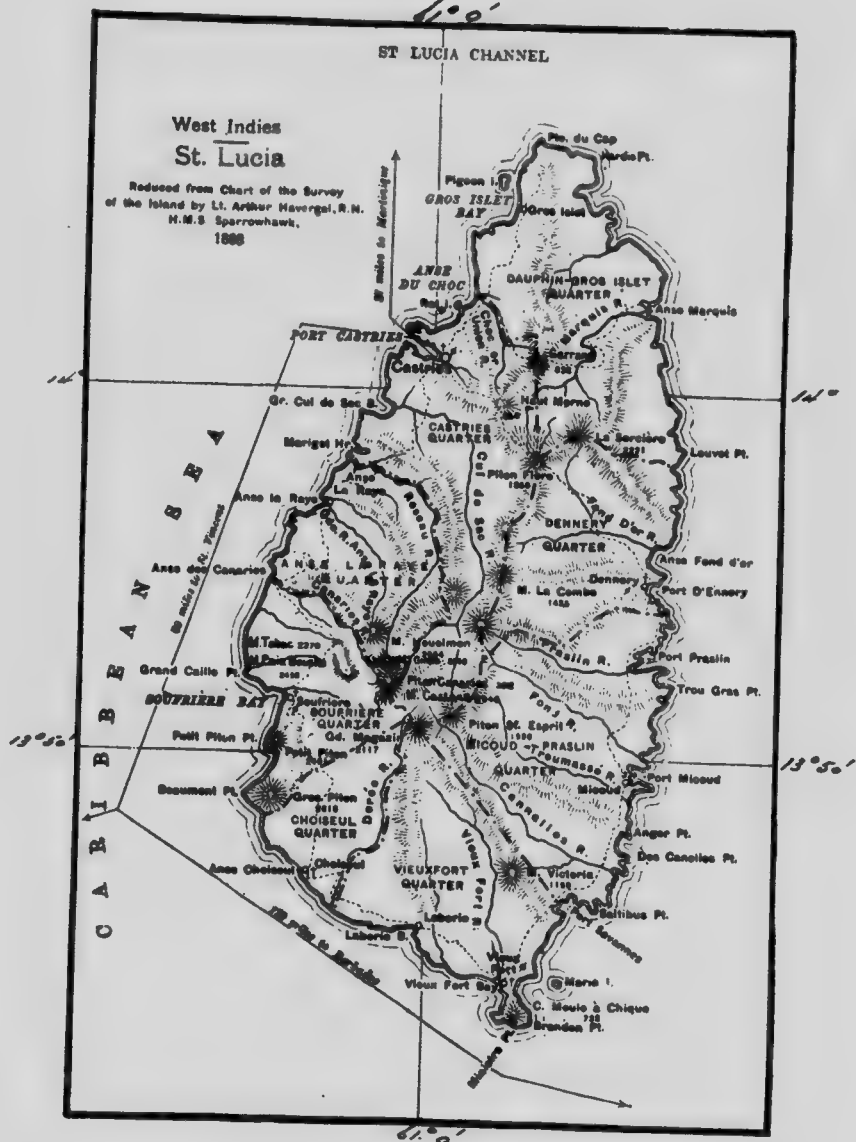
The beauty of the island, its general freedom from malaria and its fine beaches for sea bathing would make it very attractive to tourists.

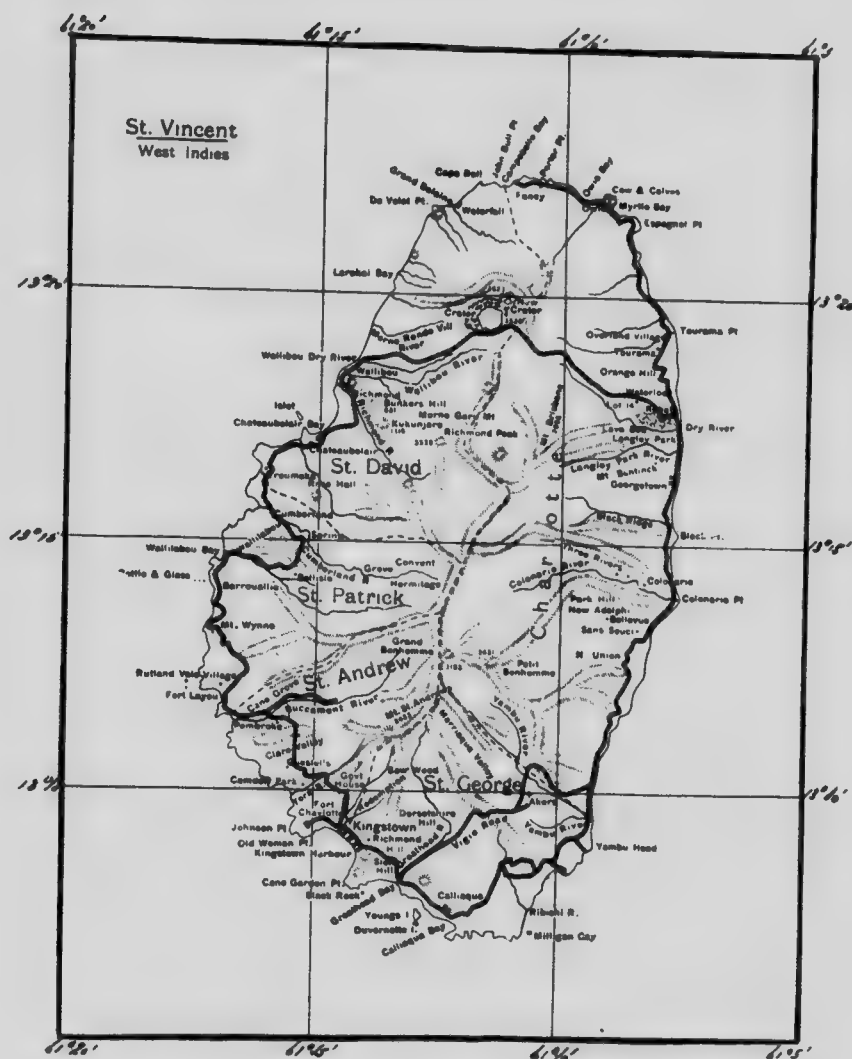
The products of the Windward and Leeward islands will be considered in the next chapter.

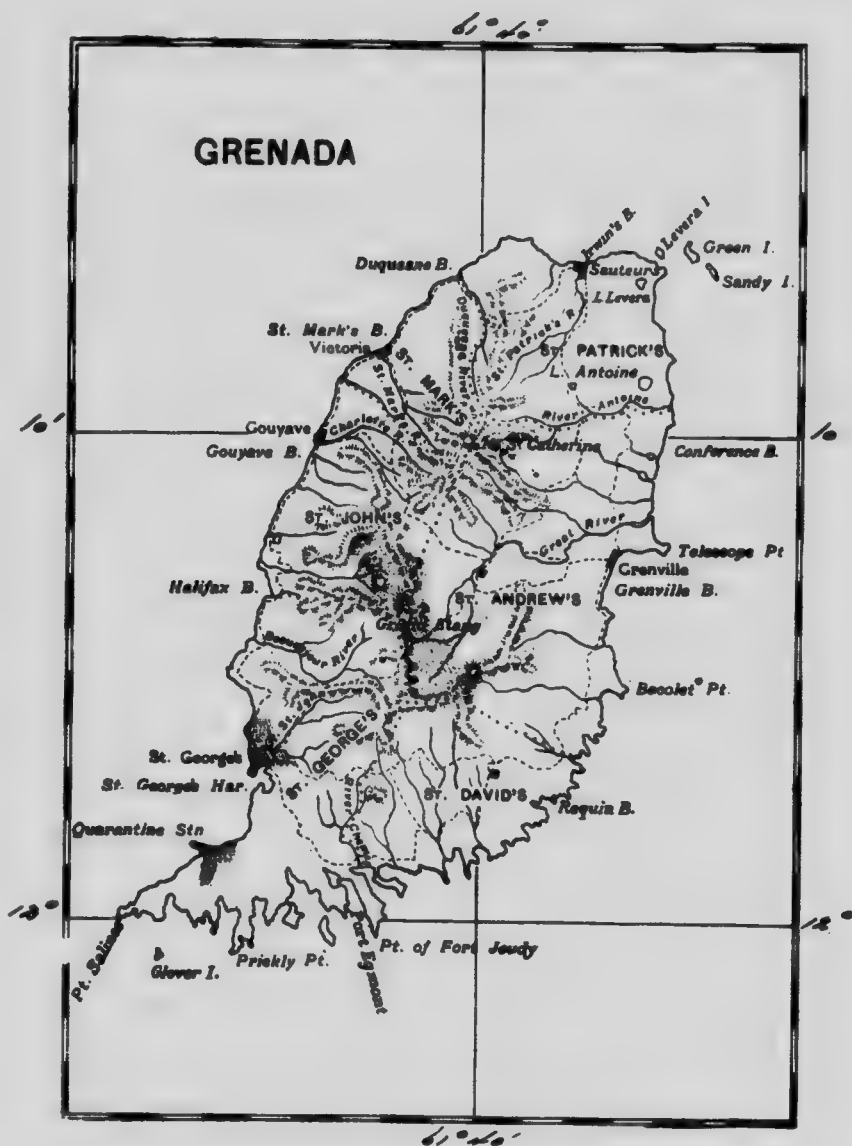












Chapter XXI.

PRODUCTS OF WINDWARD AND LEEWARD ISLANDS.

The products grown in the different islands of the Windward and Leeward groups depend to a great extent upon the rainfall and other local conditions, but in some cases an island that would be equally well suited to different products grows a great deal of one and very little of the others.

SUGAR PRODUCTION.

Antigua and St. Kitts-Nevis are pre-eminently sugar colonies. St. Lucia also produces considerable quantities of sugar while Montserrat and St. Vincent are small sugar producers, but Dominica, Grenada and the Virgin islands produce no sugar for export.

COTTON GROWING.

Sea island cotton is grown quite extensively in St. Kitts as an intervening crop between two cane crops. The system is said to have given excellent results with both cotton and sugar cane. In Nevis cotton is grown as a continuous crop by both large planters and peasant proprietors. Cotton growing bids fair to rival sugar as the chief industry of Nevis. The peasant proprietors of Anguilla and Barbuda nearly all grow cotton. In Antigua considerable quantities of cotton are grown, but the conditions do not seem to be as favourable as in St. Kitts and Nevis. In Montserrat cotton growing has largely taken the place of sugar cane growing, and it has proved so profitable that estates which were formerly mortgaged while growing sugar cane have been freed from debt by the profits of cotton growing. In the Virgin islands the peasants are growing cotton quite extensively with great success. St. Vincent and the St. Vincent Grenadines have been particularly successful in growing sea island cotton. The mainland of Grenada produces only a little cotton, but in the Grenada Grenadines the peasant proprietors nearly all grow cotton, and the great success of the peasant settlements of Carriacou are to a considerable extent due to the profits of cotton growing. Dominica does not grow cotton and is not likely to ever do so. The island is probably rather too wet for cotton. St. Lucia grows only small quantities of cotton. If the St. Kitts practice of growing cotton as an intervening crop with sugar cane were introduced in St. Lucia the output of cotton might be increased. In all the Leeward and Windward islands where cotton is grown the long staple sea island cotton is the variety grown except that small quantities of a variety known as Marie Galante are grown in the Grenadines.

While the areas devoted to cotton are not great and never will be great in the Leeward and Windward islands it will probably always be a paying crop. The world's supply of the long staple sea island cotton has never been very large and it commands the highest prices. The Carolina sea island cotton has always been regarded as the world's standard and the fact that the West Indian product has been pronounced superior to Carolina sea island cotton by English experts is very encouraging.

GREAT PROFITS IN LIMES.

The most profitable business in the West Indies in recent years has been the growing of limes and the manufacture of concentrated lime juice, citrate of lime and oil of limes.

When concentrated lime juice sold at £10 per hogshead on the London market it paid to grow limes in Montserrat, St. Lucia and Dominica. During the past year the price has ranged between £25 and £42 and has usually been considerably above £30. This is not due to a decrease in the supply of limes, but to an increase in the consumption of concentrated lime juice and a growing demand for fresh limes as a substitute for lemons, especially in the United States. A lime half the size of a lemon produces more juice than a lemon and many people prefer the flavour. Limes are coming very much into favour for use with fish. Half of a small lime is a fashionable accompaniment to a dish of fish. Fresh limes are also regarded as superior to lemons for what Canadians call lemonade, but the English call lemon "squash" or lime "squash," that is juice of fresh lemons or limes with water and sugar.

When the limes are required to be shipped in barrels for sale as fresh limes they are picked green from the tree. When they are required for the manufacture of concentrated juice or citrate of lime they are always allowed to drop to the ground, as already stated. Lime trees bear all the year and the same tree will have limes in various stages of growth. When limes are picked from the tree there is always danger that imperfect fruit will be picked or accidentally knocked from the tree. While little children can assist in picking up the fallen limes from the ground they cannot pick limes from the trees.

All the large lime estates have their own mills for making concentrated juice or citrate of limes and otto of limes. The peasants sometimes sell their limes to the large estates having mills, but more commonly pick them green for shipment in barrels. In St. Lucia the government has established a mill to manufacture concentrated juice for the benefit of the peasant proprietors and planters who have no mills.

The oil of limes or otto of limes is taken from the skins of limes and commands a high price.

Montserrat has long been famous for its lime juice but Dominica is the chief producer of "Montserrat" juice. In Montserrat a blight affects the lime trees and while new trees are always being planted the old ones die off about as fast as the new ones come into bearing, but in Dominica and St. Lucia there is very little trouble with blight. Trees live for many years and as many trees are being planted the production of limes will be greatly increased in a few years. It takes about seven years for a lime tree to come into profitable bearing although it produces some fruit at an earlier age.

Montserrat will probably hold its own in lime growing, but it is not likely to increase its production.

The greater success of limes in Dominica and St. Lucia is attributed to the heavier rainfall.

In Grenada, where a few limes are grown, I was told that some trees in a dry district were badly afflicted with blight. At a later date the same trees were found to be free from the blight and in fine condition without treatment. Imperial Department of Agriculture officials have been making a study of these trees that recovered from the blight, and it is hoped that an enemy of the blight has been found that may be useful in controlling the disease in dry districts. The greater part of Grenada has sufficient rainfall for limes, but cacao is so generally grown that the production of limes is not likely to become large. In Carriacou there is a very large lime estate, and the trees appear to be doing splendidly, although they have not yet come into bearing.

It is generally claimed in Dominica and St. Lucia that limes require peculiarities of climate and rainfall that only exist in perfection in those islands, and that consequently they will always be the chief centres of production. This may be an exaggeration, but interviews with several New York merchants who import limes extensively showed that they preferred West Indian limes to any others. They get

a few limes from Cuba, Porto Rico and Florida, but they do not possess the same fine flavour as those of Dominica, St. Lucia and Montserrat. Although lime juice would seem to be especially a temperance drink, it is stated that in New York there is a steady demand for fresh limes to flavour liquors. The biggest demand is from hotels, restaurants, and railway dining cars.

In the southern district of Antigua, where the rainfall is heavier than in the rest of the island, limes are grown with about the same measure of success as in Montserrat, but not nearly so extensively as in Montserrat.

The climate of St. Vincent seems to be suited to limes, but the quantity grown is small.

CACAO PRODUCTION.

Grenada ranks next to Trinidad as a producer of cacao, and in proportion to population and area it is probably the greatest cacao producer in the world. Nearly all the small peasant proprietors in this island grow cacao. It is not a new thing in Grenada, and a large proportion of the trees planted are already in full bearing. It is not probable that the production will increase to a very great extent, as the island is already densely populated and its resources remarkably well developed. Any increase that takes place will be chiefly due to improved methods as a result of the campaign of instruction carried on by the Imperial Department of Agriculture.

In Grenada the immortal is seldom used to shade cacao trees. The planters of Grenada do not share the belief that the cacao tree needs "an umbrella to protect it from the sun," but the conditions of soil and climate in Grenada are somewhat different from those of Trinidad, and this may account for the difference in opinion.

St. Lucia produces nearly one-fifth as much cacao as Grenada, Dominica about one-eighth as much, and St. Vincent's cacao exports are large enough to be respectable. All of these islands are well adapted for cacao, and in Dominica and St. Lucia especially there is plenty of land to spare, but limes are given the preference in planting new areas.

THE PRODUCTION OF COFFEE.

Dominica, St. Lucia, St. Vincent and Grenada are all well adapted to coffee growing, but very little coffee is grown. The largest producer is Dominica, which exports less than ten thousand pounds annually.

NOT MANY COCONUTS.

There are areas near the sea in all the Windward and Leeward islands that seem admirably adapted to coconuts, but very few trees have been planted, although a few nuts are grown in each colony for home consumption. The largest producer of coconuts is St. Lucia, and it only exports about 50,000 nuts annually. St. Vincent, which now exports small quantities of nuts, will have more for export before long, and Nevis will soon be shipping coconuts. Grenada ships a considerable quantity of copra.

FRUIT GROWING.

Very little fruit other than limes is grown in the Leeward and Windward islands except for local consumption. Almost every peasant has a few fruit trees, and oranges, grape fruit, bananas, mangoes, avocado pears, pawpaws and other tropical fruits are everywhere obtainable in limited quantities at low prices, but the quantities exported are very small.

Dominica and St. Lucia are especially well adapted for growing oranges, grape fruit, bananas, and avocado pears. The planters say they would set out fruit trees if there were any certain assurance that there would be a good market in Canada for their fruit when the trees reached the producing stage.

Pineapples grow well in Montserrat, Antigua, St. Kitts, Nevis and the Virgin islands, but very few are grown.

THE PREPARATION OF PAPAIN.

In the island of Montserrat a preparation of papain is made from the papaw. It is exported and used in the manufacture of peptonized foods and for medicinal purposes as it greatly promotes digestion. The papaw juice used is the colour of milk. Hon. Francis Watts, the Imperial Commissioner of Agriculture, at whose suggestion the industry was started in Montserrat, gave me a very interesting account of the method of collecting and preparing papain.

"The milk of the papaw possesses the property of rendering meat tender, and in fact partially digesting it," said Hon. Francis Watts. "The milk is obtained by making a scratch or shallow incision in the skin of the papaw fruit while in green condition. It is desirable to employ a bone or wooden knife like a paper knife in making the incision as it is essential that no iron or iron utensils shall be employed. The milky fluid rapidly exudes and may be caught in a cup held beneath the fruit. A tin cup must not be used. Earthenware or glass vessels must be used for the purpose. The fruit is not removed from the tree and it may be subjected to the operation of tapping several times at intervals of two or three days. After collecting the juice soon coagulates and takes the form of a snow-white curd possessing a somewhat pungent but not putrid smell. It speedily decomposes if not rapidly dried and when decomposing emits a most unpleasant odour. Drying is well effected by spreading the coagulated milk on drying frames made by stretching brown linen on light wooden frames, somewhat like those used for framing school slates. Drying must be continued until the substance is crisp and in such condition that it can be reduced to a fine powder without any difficulty being experienced from stickiness. The dried material should be ground to a fine powder when the resulting product should be a white or cream coloured powder with a characteristic but not putrid smell. Grinding is easily effected in a mill of the type commonly employed for grinding coffee. When grinding it is desirable to have the papain slightly warmed. The powder should be packed in tins or bottles and carefully preserved from contact with the air."

The eating of the fresh fruit promotes digestion and as it is very palatable when ripe it is popular in the West Indies.

PRODUCTION OF SPICES.

Grenada produces large quantities of nutmegs, mace, ginger and other spices. St. Vincent and St. Lucia also export small quantities of spices, but no spices are exported from the Leeward islands.

ST. VINCENT'S ARROWROOT.

St. Vincent makes a specialty of growing arrowroot, the island is particularly adapted for growing the finest quality of arrowroot and particular pains are taken in the St. Vincent arrowroot starch factories to produce a good article.

DYEWOODS AND HARDWOODS.

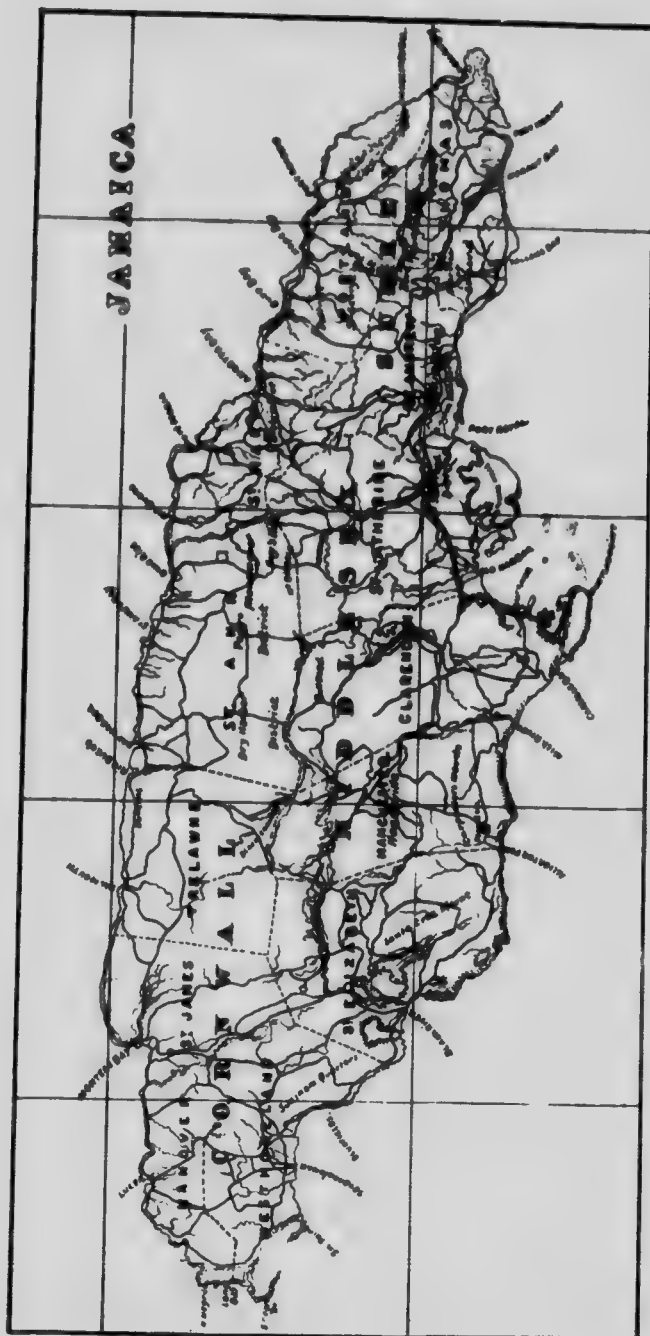
Logwood is exported in considerable quantities from St. Lucia and a little is shipped from St. Vincent and Antigua. St. Lucia and Dominica have fine hardwoods in their forests and as the land is cleared by settlers small quantities are offered for sale. There are some beautiful furniture woods, but as elsewhere in the tropics the forests are mixed, no great number of trees of one kind being found together.

RUBBER IN DOMINICA.

There are estimated to be between 15,000 and 20,000 Para rubber trees on the plantations of Dominica. They are not yet old enough to produce rubber but Dominica officials of the Imperial Department of Agriculture are very hopeful regarding the possibilities of rubber production. A number of trees of other varieties of rubber have also been planted. The interior of Dominica and St. Lucia seems to be well suited for rubber growing.

OTHER PRODUCTS.

The Windward and Leeward islands have a variety of other products, but the quantities exported are not large and it would not be worth while to give details about them. It may be noted that St. Lucia exports over eighty thousand pounds of honey annually and that Antigua produces a good quality of onions and is ambitious to supply the Canadian market, but as British Guiana imported 940,000 pounds of onions last year that would seem to be the natural market for Antigua onions. Small quantities of Cassava starch are produced, and the growth of cassava might be greatly increased.



Chapter XXII.

THE COLONY OF JAMAICA.

Jamaica, the largest of the British West Indian islands, is about one thousand miles west of Barbados and between four and five degrees farther north, the latitude being between $17^{\circ} 48'$ and $18^{\circ} 32' N.$, about the same latitude as the Virgin Islands.

In thinking about the island of Jamaica it is necessary to constantly bear in mind the fact that as the elevation increases the temperature lowers. The average annual mean temperature is about one degree cooler at an elevation of 300 feet than at sea level; 1.7° cooler at 500 feet; 3.5° cooler at 2,000 feet; 8.5° cooler at 2,500 feet; 10.1° cooler at 3,000 feet; 11.7° cooler at 3,500 feet; 13.3° cooler at 4,000 feet; 14.8° cooler at 4,500 feet; 16.4° cooler at 5,000 feet; 17.8° cooler at 5,500 feet; 19.3° cooler at 6,000 feet; 20.8° cooler at 6,500 feet; 22.3° cooler at 7,000 feet; and 23.1° cooler at 7,300 feet.

All these elevations are to be found in Jamaica, the highest point being the Blue Mountain Western Peak 7,386 feet above sea level.

In the total area of 4,207½ square miles an area of 2,217½ square miles lies at elevations varying from sea level to 1,000 feet, the greater part of this zone having a considerable elevation above the sea level. In the zone having an elevation of from 1,000 to 2,000 feet above sea level there is an area of 1,452½ square miles, equal to about two-thirds the total area of the island of Trinidad. In the zone having an elevation from 2,000 to 3,000 feet above sea level there is an area of 400 square miles larger than the whole of Dominica and more than three times as large as Barbados. In the zone having an elevation between 3,000 and 4,000 feet there is an area of 74 square miles considerably greater than the whole island of St. Kitts. In the zone having an elevation of from 4,000 to 5,000 feet, there is an area of 39 square miles, equal to the whole island of Montserrat, while at still higher elevations there is an area of 24 square miles.

Visitors to Jamaica who visit only one section of the island can get no adequate conception of the climate or the great variety of its productions. In the higher levels the heat is never extreme and it is remarkable that the range of temperatures, that is the difference between the maximum and minimum temperatures, is less at heights ranging from 500 to 7,000 feet than at sea level. At an elevation of 2,500 feet there is only a difference of 12 degrees between the highest and the lowest temperatures, the maximum temperature being $76^{\circ} 7'$ and the minimum $64^{\circ} 7'$. Compare this with the range of temperatures in the prairie country of Western Canada where it is not uncommon to have temperatures as low as 40° below zero in winter and 90° above zero in summer, a range of 130 degrees.

Residents of the lowlands who can afford to do so usually spend a few weeks every year in the highlands, just as Canadians and Americans take holidays at the summer resorts of Canada. There are good hot-els at Mandeville, Montague and other high-land resorts.

THE RANGE OF TEMPERATURES.

I am indebted to Mr. Maxwell Hall, for many years at the head of the Jamaica Meteorological service, for the following table of temperatures at various elevations:—

Elevation Above Sea-level.	Mean.	Maximum.	Minimum.	Range.
Feet.				
0	8	87.5	70.8	17.6
500	7.1	85.1	69.8	15.3
1,000	6.1	82.8	66.0	14.2
1,500	5.1	80.6	67.4	13.2
2,000	4.0	78.0	66.1	12.5
2,500	3.0	76.7	64.7	12.0
3,000	2.0	74.9	63.3	11.6
3,500	1.1	73.2	61.7	11.5
4,000	0.5	71.6	60.1	11.5
4,500	0.0	70.1	58.5	11.6
5,000		68.4	56.8	12.0
5,500		67.5	55.0	12.5
6,000		66.0	53.1	13.2
6,500	58.0	65.0	51.2	14.0
7,000			49.3	15.0

VARIATION IN RAIN ALL

The rainfall varies as much in different parts of Jamaica as the temperature. Some sections are dry while others have a heavy rainfall, but taking the island as a whole it usually has an ample rainfall although for several years past it has been considerably below the average of the previous forty years. But even the driest districts could be irrigated, for there are water supplies at no great distance in mountain springs and rivers coming down from the mountains. The surveyor-general of Jamaica told me that by means of irrigation a very large area now too dry for successful cultivation could be made highly productive.

THE LAND SUITABLE FOR CULTIVATION.

Sir Daniel Morris, who was for a number of years at the head of the Jamaica Department of Agriculture, said in 1897: "Of the total area of 2,692,480 acres about 800,000 acres, equal to 2.97 per cent, are estimated to be occupied by swamps and rocky or other useless lands. Of the estimated area of cultivable land 2,340,412 acres are in private hands, while in that of the Crown there are approximately 272,068 acres. Nearly one-half of the estimated area of the cultivable land in the island is at or above 1,000 feet elevation. The estimated area covered by forest is 330,000 acres, equal to 12 per cent of the whole area. As only a portion of this can with safety be cleared, the estimate of cultivable land above given should be reduced by about 300,000 acres. There are now beneficially occupied in cultivation 693,674 acres, or a little more than one-fourth of the whole cultivable area."

That was seventeen years ago and conditions are somewhat different now, but the estimate of Sir Daniel Morris regarding the area of land suitable for cultivation may be accepted as accurate as he had not only scientific knowledge of agriculture but also every opportunity for investigation.

At the present time the area of lands in private hands is only 2,145,332 acres, a large number of acres of public lands that had been given as a bonus to a railway company having been returned when the Government acquired the railway, so that the area of Crown lands is 547,148 acres.

GREAT INCREASE IN CULTIVATED AREA.

While the area of lands in private hands has decreased the cultivated area has greatly increased, being 922,633 acres last year as compared with 693,674 acres when Sir Daniel Morris made his report to the West India Royal Commission. Last year the number of acres devoted to different products was as follows:

	Acres.
Common pasturage.....	490,064
Guinea grass.....	152,527
Pimento and common pasture.....	72,766
Pimento alone.....	17
Ground provisions.....	99,637
Bananas.....	51,071
Sugar cane.....	21,753
Coffee.....	22,275
Coconuts.....	17,377
Cacao.....	11,236
Oranges.....	1,715
Tobacco.....	969
Corn.....	504
Ginger.....	253
Cassava.....	165
Cotton.....	121
Tea.....	100
Rice.....	80
Arrowroot.....	20
Rubber.....	17
	922,633

I have heard it said that the remarkable increase in the production of bananas in Jamaica has been at the expense of other industries. Frequently the opinion was expressed that everything was being sacrificed to bananas, but inquiry showed that while the area devoted to bananas has increased by 48,398 acres within the last ten years, that is over 148 per cent., the only important products that have decreased in acreage are ground provisions or vegetables. The area devoted to ground provisions in 1904 was 109,637 acres, while last year it was only 99,632. The area devoted to sugar increased 7,330 acres or over 29 per cent, during the ten years, the area devoted to coconuts 7,000 acres or about 67 per cent, the area devoted to cacao 4,704 acres or over 71 per cent. The tobacco acreage is nearly three times as great as it was ten years ago. The orange acreage has increased over 21 per cent, the cotton acreage about 20 per cent, and the ginger acreage about 37 per cent, while the cultivation of tea has been successfully started. I was told very positively that coffee trees had been sacrificed to bananas, yet I found on investigation that the coffee acreage was actually 796 acres greater last year than it was in 1904. However, the coffee acreage increased over 29 per cent between 1904 and 1907 and thereafter showed a steady decrease until in 1913 it was little greater than in 1904. The explanation appears to be that during the three years of rapid increase young coffee trees were being planted and that old coffee trees were afterward cut down. Some of the coffee trees were very old. An important new industry is the extraction of essential oil from the rind of oranges. The exports last year were valued at £13,000. It is evident that Jamaica is steadily and rapidly increasing its production.

TEA GROWING IN JAMAICA.

At Claremont, Jamaica, there is a fine tea plantation with a well equipped plant for preparing and packing the tea. The tea produced is of very fine quality. It commands good prices in England and this experiment in tea growing has proved very profitable. The manager told me he believed there were thousands of acres of land in the highlands of Jamaica as well suited for the production of tea as any lands in Ceylon.

THE REMARKABLE INCREASE IN BANANAS.

The wonderful increase in banana production is attributable to the enterprise of the United Fruit Company in establishing a really first-class service of fruit steamers between Jamaica and Atlantic seaports of the United States, and guaranteeing to buy bananas if the planters and peasant proprietors would produce them. This company gives a very frequent service of fast fruit steamers from Kingston, Port Antonio and Port Maria.

JAMAICA'S PIMENTO.

Pimento is a Spanish word which means pepper. Pimento is, in fact, Jamaica pepper, but it is known in every Canadian kitchen as "allspice." Jamaica is the only country that extensively produces "allspice" and it exported last year 13,561,200 pounds of which less than 2 per cent was shipped from Jamaica to Canada. How much came to Canada by way of the United States and England is uncertain, as the Canadian Trade and Navigation returns include pimento with spices. Pimento, or "allspice" is as exported, a small dry berry resembling black pepper in appearance. Pimento trees and pasture go together in Jamaica, and an estate devoted to pasture and pimento is known as a pen.

TWO THOUSAND MILES OF GOOD ROADS.

Jamaica has about 5,000 miles of roads, of which about 2,000 miles are main roads declared to be suitable for motor cars. They are wide and well constructed. Considering the high levels reached by some of these roads the grades are remarkably moderate. To avoid steep grades in constructing wide driving roads suitable for a double line of traffic to the great heights reached by a number of the main roads it is necessary that the roads shall be winding, but this serves to bring them in touch with large areas of land suitable for cultivation.

Such a system of roads undoubtedly facilitates production and encourages the development of the great natural resources of the island. These roads also offer great attractions for tourists on account of the wonderful beauties of scenery as they wind beside swift flowing rivers, over plains, low hills and high mountains at various elevations with changing views at every turn.

JAMAICA'S DEPENDENCIES.

Jamaica has two groups of island dependencies, the Cayman islands, lying to the northwest between 19° 16' and 19° 45' north latitude, and the Turks and Caicos islands lying to the northeast between 21° and 22° north latitude.

The Cayman islands consist of Grand Cayman, 17 miles long and from 4 to 7 miles broad, Little Cayman, 9 miles long and 1 mile broad, and Cayman Brae, 10 miles long and one mile broad. The two smaller islands produce large quantities of coconuts, while in Grand Cayman the people raise horses, cattle, pigs and poultry and catch turtle. In all three islands sailing vessels are built of native woods and Grand Cayman exports small quantities of dyewoods, mahogany, cedar and other timber.

The Turks are a group of nine tiny islands, the largest of which are Grand Turk with an area of 10 square miles and Salt Cay having an area of 5½ square miles. The Caicos islands, seven in number, lie to the northwest of the Turks. The chief industry of the Turks and Caicos islands is salt gathering. There are about six hundred acres of salt ponds and it is estimated that they produce about 4,000 bushels of salt per acre annually.

PRINCIPAL EXPORTS OF JAMAICA.

The collector-general of Jamaica in his last report compared the exports of some of the most important products during the year 1913 with those of the previous four years as follows:—

		1913.	Average of four years.
Annatto.....	Lbs.	613,044	866,175
	Value	£5,108	£7,031
Beeswax.....	Lbs.	57,904	72,268
	Value	£3,257	£4,048
Cacao.....	Cwt.	46,359	53,449
	Value	£114,738	£103,586
Coconuts.....	No.	23,760,600	18,721,420
	Value	£135,486	£85,241
Coffee.....	Cwt.	58,193	77,068
	Value	£158,578	£180,847
Divi Divi.....	Lbs.	219,530	380,474
	Value	£534	£908
Fruit, Bananas.....	Stems	11,597,891	15,171,714
	Value	£988,236	£1,310,826
" Grape-fruit.....	Pkgs.	81,983	64,323
	Value	£28,355	£18,339
" Oranges.....	No.	45,863,600	38,293,837
	Value	£58,967	£42,565
Ginger.....	Cwt.	21,234	24,972
	Value	£36,637	£47,376
Hides.....	Lbs.	619,707	464,388
	Value	£23,739	£13,395
Honey.....	Galls.	109,334	164,111
	Value	£15,261	£20,630
Horses and mules.....	No.	122	79
	Value	£4,101	£1,726
Limejuice.....	Galls.	89,010	102,163
	Value	£3,708	£3,936
Logwood Extract.....	Pkgs.	23,963	21,101
	Value	£170,427	£154,640
Pimento.....	Cwt.	135,612	107,215
	Value	£88,148	£75,512
Rum.....	Galls.	958,677	1,259,915
	Value	£10,328	£130,456
Sugar.....	Cwt.	97,821	299,067
	Value	£52,171	£190,023
Skins, goat.....	Lbs.	156,397	146,500
	Value	£14,336	£13,620
Tobacco, cigars.....	Lbs.	74,473	70,311
	Value	£36,025	£45,267
Tobacco, cigarettes.....	Lbs.	2,905	10,530
	Value	£342	£1,330
Tobacco, leaf.....	Lbs.	43,303	30,268
	Value	£1,473	£1,269
Tortoise shell.....	Lbs.	5,571	5,967
	Value	£6,008	£5,116
Turtle.....	No.	624	871
	Value	£1,379	£2,063
Wood, bitter.....	Tons	3,441	2,602
	Value	£5,162	£3,907
Wood, fustic.....	Tons	3,449	2,985
	Value	£7,416	£7,176
Wood, logwood.....	Tons	50,081	33,409
	Value	£106,423	£75,388
Yams.....	Cwt.	8,970	9,410
	Value	£3,144	£3,122

"As was to be expected the after effects of the hurricane at the west end of the island and the unfavourable seasons of recent years are abundantly apparent in this comparative table, and improved output is only noticeable in coconuts, grapefruit, oranges, hides, logwood extract, pimento, goatskins, tobacco leaf, bitterwood and dye woods, these being articles which are either neglected in more prosperous times or

which are more or less uninfluenced by seasonal conditions. The most serious falling off has been that under the head of bananas, where the year's deficit on comparison with the four years average amounted to the very considerable total of 3,573,833 stems and the loss in value on the item to £322,590. Heavy falling off is also observable in coffee, £22,269; rum, £29,128 and sugar, £127,852; while the best showing on the increase side has been £50,245 in the value of coconuts; £9,416 in the value of grapefruit; £16,402 in oranges; £9,844 in hides; £15,787 in logwood extract and £31,035 in the value of logwood."

WHERE JAMAICA EXPORTS GO.

The collector-general points out that the interest of the United Kingdom in the export trade of Jamaica is a rapidly diminishing quantity. Forty years ago the United Kingdom took 81.5 per cent of Jamaica's exports. Last year it took 17.5 per cent.

The percentage of Jamaica's chief products exported to the United Kingdom, the United States, Canada and other countries is shown below:—

	United Kingdom.	United States.	Canada.	Other Countries.
	p. c.	p. c.	p. c.	p. c.
Fruit.....	6.3	91.5	1.7	0.5
Sugar.....	39.5		59.4	10.1
Rum.....	79.5	0.7	2.9	16.9
Coffee.....	10.3	12.3	4.0	73.4
Cacao.....	52.3	13.8	5.9	28.0
Dyewoods.....	12.9	36.0		51.1
Pimento.....	5.7	32.7	1.9	59.7

It will be noted that except as regards sugar Canada takes very small proportions, but these figures are somewhat misleading for Canada buys large quantities of Jamaica products from the United States. For instance Canada's consumption of Jamaica bananas is quite large, but because Canada gets its supplies from the United States the Jamaica Government reports cannot take our purchases into consideration. France took 57.4 per cent of Jamaica's coffee exports and 21.3 per cent of the cacao.

WHERE JAMAICA BUYS GOODS.

As regards Jamaica's imports the percentages coming from the United Kingdom, United States, Canada and other countries were as follows:—

	Food Drink and Narcotics.	Raw Materials.	Manufactured Goods.
United Kingdom.....	21.5	8.3	54.4
United States.....	52.7	87.7	39.5
Canada.....	18.5	0.8	1.7
Other Countries.....	7.3	3.2	5.4



A grove of coconut trees.



Climbing a tree for coconuts.



The top of a coconut tree.

Chapter XXIII.

THE BAHAMAS ARCHIPELAGO.

The Bahamas archipelago consisting of 29 islands besides a large number of keys and rocks extends from 22° 25' to 26° 40' north latitude and is the most northern of the British West Indies, most of the islands of the archipelago being outside the tropics. The largest islands are as follows:—

	Area.	Extreme Length.	Extreme Breadth.
	sq. miles.	miles.	miles.
Andros Islands	1,600	95	38
Great Abaco	680	70	17
Little Abaco	98	24	12
Great Anagua	530	34	25
Little Anagua	30	8	7
Grand Bahama	430	66	11
Crooked Island	76	19	8
Acklin Island	129	41	10
Eleuthera	164	57	11
San Salvador	160	42	14
Exuma	110	32	7
Mavaguana	96	23	6
New Providence	85	19½	7
Watling's Island	60	13	6
Rum Cay	29	9½	5

Andros is usually referred to as if it were one island, but it is really a group of islands, the largest of which is about 60 miles long. The interior of these islands has never been thoroughly explored.

The Bahamas are very different from the rest of the British West Indies in one respect. They have no mountains. They are nearly flat. Most of the islands have a great deal of rock, but there are considerable stretches of good land and it is said that "if the rock is blown up and sufficiently pulverized it forms an admirable medium for the growth of a variety of economical products, and is especially adapted to citrus fruits"

Approximately 365,431 acres of land are privately owned and there are still 2,434,730 acres of Crown lands. Very little is known about the real character of these Crown lands or what proportion of them is suitable for cultivation, but it is known that there are quite extensive forests of good timber. An American company has been conceded the right to cut timber in Abaco, Andros and Grand Bahama islands. Last year this company milled 12,000,000 feet of pine.

Of the land in private hands only a small proportion is thoroughly cultivated. The soil as a rule is not very deep.

ABOUT THE SAME SIZE AS BARBADOS.

Eleuthera island is very nearly the same size as Barbados, having 164 square miles, whereas Barbados has 166½ square miles, but Eleuthera has less than 10,000 inhabitants, while Barbados has nearly 172,000. Eleuthera is said to be very fertile. In 1903 Governor Sir G. T. Carter, in a report to the Colonial Office, said of this

island: "Eleuthera is unquestionably the agricultural island 'par excellence' of the Bahamas and I was much struck during a recent visit I paid to some of the settlements with its capabilities in this direction; with capital and properly directed effort there should be no limit to its productiveness."

FRUIT TREES DESTROYED BY HURRICANE.

Oranges and grapefruit of fine quality are produced and pineapples grow well in all the Bahama islands, while small quantities of coconuts are exported.

The exports of fruit and coconuts have greatly declined since the destructive hurricane of 1906. In 1907 the oranges exported numbered 1,599,860, the grapefruit 707,975 and the coconuts 316,250. In the fiscal year ended March 31, 1914, the number of oranges exported was 622,257, grape fruit 200,280, coconuts 16,347. In 1907 the number of fresh pine apples exported was 804,144, while 68,319 cases of canned pine apples were exported. During the fiscal year ended March 31, 1914, there were not enough pine apples grown to supply the local canneries and only 31,199 cases of preserved pine apples were exported.

But while fruit production has decreased sisal growing has been greatly extended. There are a number of sisal factories in the different islands and the quantity of sisal exported during the year ended March 31, 1914, was 7,249,496 pounds. The Bahamas seem to be especially well adapted for sisal and the probability is that the production will steadily increase as there are believed to be large areas now uncultivated that would be well suited for growing sisal.

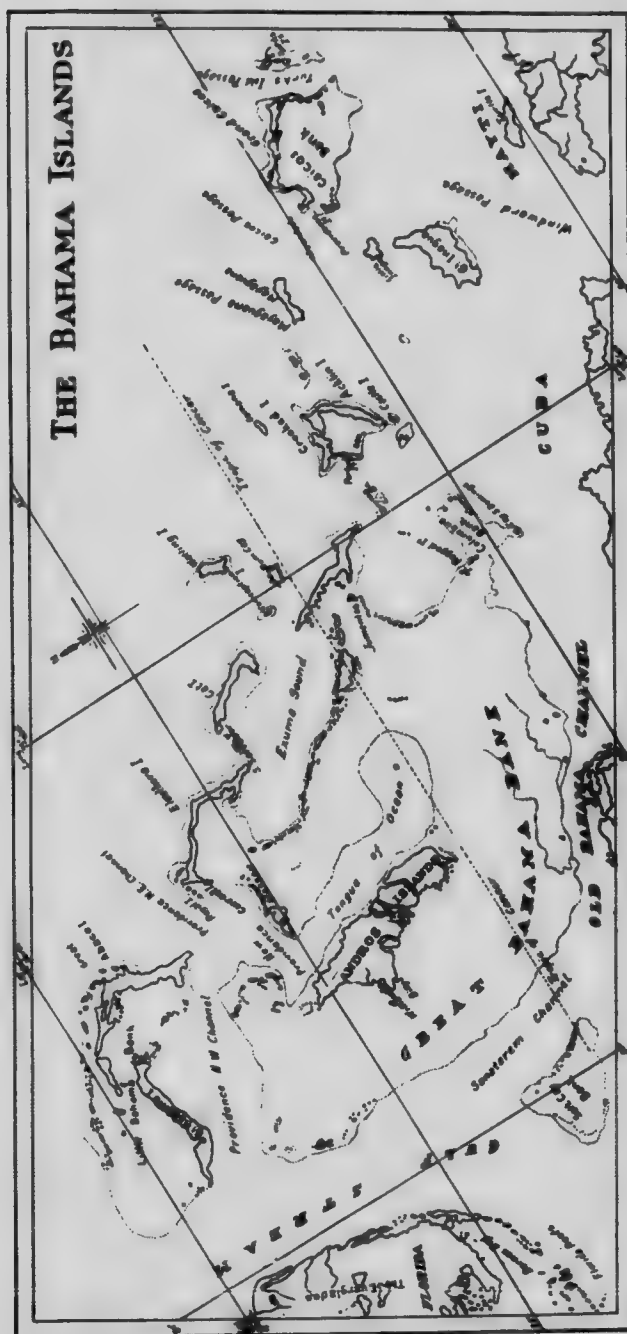
SPONGE, TURTLE AND PEARLS.

The Bahamas Board of Marine Products is an organization formed to develop sponge and other marine products of these islands. This Board reports that the sales of sponge on the Nassau Exchange last year amounted in value to about \$482,800. "This return is for sales effected on the Exchange in the capital and does not include the purchases of sponge made by merchants trading at Andros and Acklin's Island where no official record is kept. Sponge to the value of at least £15,000 is sold at these islands annually and this amount should be added to the figures." This would make the value of sponge collected last year over \$555,000.

The Marine Products Board have recommended to the government that Mediterranean sponge be transplanted to the waters of Bahamas, pointing out that the marine conditions are almost identical with those of the Mediterranean waters most famous for sponge. The board have also under consideration a proposal to introduce the pearl oyster into Bahamas waters. Many thousands of conch shells and turtle shells are exported. Occasionally a beautiful pink pearl of considerable value is found in the conch.

The turtle fisheries do not now yield as good results as formerly and the Marine Products Board reporting on the best means of reviving the industry say: "The Bahama islands have many creeks with narrow entrances that are rich grazing grounds for turtle; if these creeks were fenced with wire netting, stocked with turtle and protected from poachers, there is every reason to believe that the turtle would thrive and increase, as the creeks abound with food and are provided with sand bays on which the turtle could lay their eggs. Unable to escape, and protected from their natural enemies, the turtle ought to increase rapidly."

Nassau, the capital of the Bahamas is on New Providence island. It is a popular health resort and many Americans visit it every winter. Nassau is said to have the best harbour in the Bahamas.



HEALTH CONDITIONS IN THE WEST INDIES.

Chapter XXIV.

From a purely commercial point of view the health conditions in the British West Indies are of importance for several reasons. It is important for business men to know whether it is dangerous or beneficial to health to travel in those colonies. It is important that they should know whether the health conditions are such that the West Indies may become attractive to tourists because it is a well-known fact that tourists leave a great deal of money in the countries they visit and increase the local demand for all kinds of products. In Switzerland it is estimated that tourists spend not less than twenty million dollars annually. It is important also to know whether conditions are such that white men can enjoy good health in the British West Indies because the black people need the care and guidance of white men and the future prosperity of these colonies would be very uncertain if the white population materially decreased. On the other hand if owing to improved health conditions absentee proprietors of lands become residents or sell to white men who become residents the purchasing capacity of the colonies will considerably increase. In Cuba nearly 60 per cent of the population is white and the proportion of whites is steadily increasing. Is there any reason why the reverse should be the case in the British West Indies as many people predict? As a matter of fact the proportion of whites to the total population in the British West Indies has decreased during the last twenty-five years, but the reason for the decrease was not climatic but economic. The British West Indies had got into the way of depending solely upon the sugar industry and when, owing to the competition of bounty-fed beet sugar the cane sugar industry became unprofitable many estates were abandoned and the owners sought new fields of enterprise. The sons of white planters seeing no hope for the future in their island homes sought employment in the United States, Canada and England.

OLDEN TIME CONDITIONS.

During the seventeenth and eighteenth centuries and the first half of the nineteenth century the British West Indies earned the reputation of being deadly to white men and they have scarcely yet recovered their good name although the health conditions have been completely revolutionized. In the old days when almost every island had its garrison of British soldiers the death rate from yellow fever among them was most appalling. The statistical reports of the British army from 1817 to 1936 showed that the annual average mortality from fever in Jamaica at the following stations was:—

	Deaths Annually.
Montego Bay.. . . .	150.7 per 1000
Spanish Town.. . . .	141.1 "
Port Antonio.. . . .	126.0 "
Up Park Camp.. . . .	131.0 "
Port Royal.. . . .	98.9 "

The average annual mortality rates for 20 years among British soldiers in garrison at Trinidad, Tobago, St. Lucia and Antigua were as follows:—

	Deaths Annually.
Trinidad.. . . .	61.1 per 1000
Tobago.. . . .	104.1 "
St. Lucia.. . . .	63.1 "
Antigua.. . . .	41.9 "

In the year 1841 there were in the military hospitals of Barbados on account of yellow fever 87.87 per cent of all the officers and men in garrison.

With such records no wonder that the West India islands were regarded as hot beds of disease. It must not be supposed that the British soldiers were more liable to the dread disease than other white men. Nearly all new comers were attacked and a large proportion of them died.

In British Guiana the conditions were even worse than in the British West India islands.

ALL IS CHANGED NOW.

But all is changed now. There has not been a single case of yellow fever in British Guiana for 26 years. Trinidad occasionally has a few cases as a result of close commercial relations with Venezuela, but any outbreak is quickly controlled and never becomes epidemic. Barbados had not a single case from 1881 to 1906 inclusive, a period of 25 years, but in 1907 there were a number of cases, the fever having been introduced by a ship from an infected port. Since then there have been no cases of yellow fever in Barbados. St. Lucia has not had a single case of yellow fever for thirteen years and for sometime before that there were only occasional cases. In St. Kitts and Nevis there has not been a single case of yellow fever for eighteen years. In Dominica no case of yellow fever has developed for over seventy years. I have not the exact dates of the last cases of yellow fever in the other colonies, but it may be said of every colony that any case of yellow fever that has occurred in recent years has been introduced from outside and there has been no epidemic. It is an interesting fact that while in the olden time the higher classes were the ones most liable to yellow fever there have been no cases among the upper classes for a long time. The late Sir Rubert Boyce, author of "Mosquito and Man," who was probably the world's greatest medical authority on yellow fever and malaria and their prevention, stated several years ago that if British regiments were stationed everywhere in the British West Indies now as they used to be there would not be a single case of yellow fever among them.

What is the cause of the change? First of all according to Sir Rubert Boyce the introduction of pipe-borne water supplies and construction of good drains to carry off surplus rain water, and secondly the strict enforcement of regulations regarding cleanliness and the pains taken to prevent the keeping anywhere of stagnant water in which mosquitoes might breed, for every one knows now that mosquitoes are always to blame for both yellow fever and malaria. It is not so generally known that the yellow fever mosquito and the malaria mosquito are quite distinct and easily distinguishable from each other, the yellow fever mosquito being scientifically known as "stegomyia calopus" and the malaria mosquito as the "anopheles." The anopheles mosquito has spotted wings and is otherwise easily distinguishable from the stegomyia calopus. While these mosquitoes are not always infected with disease there is grave danger of their becoming infected and this is why a campaign of extermination is being waged against them everywhere. They can only breed in stagnant water and this fact makes it possible to rid any district of them as they never fly very far. This is why the better classes of people who take pains to keep their premises absolutely free from mosquitoes are now comparatively safe.

As regards malaria the general use of quinine has a tendency to make the population immune even where there are malaria mosquitoes. In order to encourage the use of quinine among the masses of the people the governments of the different colonies sell quinine at cost price at almost every post office.

Every effort is being made to educate the peasantry regarding the best means of preventing the breeding of both the yellow fever and malaria mosquitoes. Clergymen and school teachers vie with one another in explaining the necessity of keeping all premises free from stagnant water.

Health text books are used in the schools and diagrams relating to malaria and yellow fever are hung up in the schools and other public places.

THE DRINKING WATER.

Any Canadian about to visit the British West Indies is almost sure to be warned by his friends to be very careful about the drinking water. As a matter of fact in all the colonies excepting British Guiana the important towns are supplied with pipe-borne, pure water coming from reservoirs fed by mountain springs. In Canada many of the towns get water contaminated with sewage owing to the barbarous and filthy custom of emptying sewage into lakes and rivers. In the British West Indies the source of supply is generally high uninhabitable hills where there is no danger of the water being polluted.

Sir Rubert Boyce who visited the British West Indian colonies in 1909 and made a thorough investigation of health conditions says: "The reason why yellow fever is no longer endemic is that the new system of pipe-borne water has done away with the necessity for storing rain-water; in consequence barrels, cisterns and odd water receptacles of all descriptions have been largely done away with. The householder can draw water from the tap whenever necessary; there is therefore no longer the need to store a pint of water for domestic use. This reform, of course, struck at the root of yellow fever, for it was in the barrels and in the innumerable other containers that the yellow fever mosquito—the *stegomyia*—bred. The receptacles which were found most frequently with larvæ were the wooden water barrels; and the ultimate destruction of the breeding places of the *stegomyia* resolves itself into getting rid of barrels for now that there are taps there is no necessity to store water."

The law which prohibits the keeping of old tin cans, empty barrels, bottles, whole or broken, pieces of earthenware, coconuts, calabashes, etc., in such a way that stagnant water can collect in them is not allowed to become a dead letter. Inspectors visit back yards frequently and delinquents are heavily fined.

CLEANLY HABITS OF THE BLACK PEASANTS.

Sir Rubert Boyce says in reference to the habits of the black peasants: "I was much impressed during my inspection of the islands by the natural cleanliness and decency of the native inhabitants; in my daily wanderings in and out of their houses and yards, whether in the towns or in the scattered villages I never encountered offensive sights or smells such as are unfortunately only too frequently met with in many parts of Europe. Indeed this natural desire on the part of the inhabitants to help themselves gave the relish to doing all in one's power to help still further to clean up."

If the provincial authorities in Canada would take the same pains to enforce sanitary cleanliness in closets in country hotels, railway stations and other public places as the authorities in the West Indies do it would be a great advantage to Canadian commercial travellers.

In British Guiana there is not a pipe-borne supply of drinking water, but the regulations regarding the screening of all water tanks and other receptacles of water to keep out mosquitoes are very strictly enforced in Georgetown as are also other regulations to ensure cleanliness everywhere. The rain water is filtered and usually boiled also.

The last case of yellow fever in British Guiana was in 1888, the last case of small-pox in 1904, and there has not been a case of either plague or cholera for over thirty years.

I endeavoured to ascertain how the death rate among the whites compared with the rate among other elements of the population, but most of the colonies kept no separate record. However it was generally agreed that the death rate among the whites is much less than among the general population. In Georgetown, British Guiana, where there is a separate record the death rate per 1,000 among the white population was only 13.1 in 1913 whereas the general death rate was 26.5 per 1,000.

A large proportion of the deaths among the black population are infants under one year old.

A VISITOR'S HASTY CONCLUSION.

As an illustration of how wrong conclusions about the West Indies are often hastily formed by visitors I may mention the fact that when on the way to Trinidad the ship stopped at Castries in the island of St. Lucia for a few hours. I walked about the place with a Canadian traveller who had been there before and volunteered to show me about. Pointing to a well-made cement drain he said: "See how much behind the age these people are—an open sewer. They have got past that stage in Havana owing to American common sense."

Sir Rubert Boyce, the great health authority, considered that same drain a good example of modern sanitation and so it was. It was used to carry off surface rain water and nothing else. It was absolutely clean. When I visited St. Lucia later on I had the good fortune to have the health regulations fully explained to me by Dr. King, the medical health officer, and his able assistant inspector Deighton Rogers, who took me about and showed me everything.

The law obliges all householders to empty their closets of night soil every twenty-four hours. Sanitary buckets must be provided for every closet with sand to cover the contents and at a late hour every night a call is made at every house. The buckets are carried to the dock and emptied into a boat specially constructed for this purpose which at a certain hour of the night goes out to sea fully three miles beyond the limits of the harbour where the contents are dumped into the ocean. This law is enforced with absolute strictness.

The greatest care is taken to keep the harbour of Castries perfectly clean. Men are constantly on the watch to prevent anything being thrown into the harbour and great pains is taken to prevent the growth of weeds anywhere around its shores. The streets and yards of the city are scrupulously clean. The inspector frequently visits back yards and any infringers of the health by-laws are heavily fined. Men, women and children are employed cleaning up the banks of little streams in the neighborhood of the city to prevent the growth of weeds or long grass that might harbour mosquitoes.

Castries also wages war on rats. Being a great coaling port many rats come there in ships. Rats are notorious disease carriers and Castries has no mercy on them. A staff of men, women and boys are constantly employed watching the docks and other places for rats. Every rat caught is dissected and microscopically examined for disease, a record being kept of each rat. Rats have a liking for the tops of coconut trees. They build nests in them and eat nuts. To prevent rats multiplying in coconut trees every owner of coconut trees within two miles of the town of Castries is obliged to place on each tree a metal band wide enough to prevent rats climbing over. The coconut tree owners grumbled and protested at being put to such expense to satisfy what they considered a silly whim. But the administration were firm and now it has been discovered that the trees produce so many more coconuts since the rat robbers have been excluded from the tree tops that the planters are well satisfied.

The water supply of Castries comes from the hills high above all cultivation or human habitation. It is conveyed from several different sources by iron pipes to a collecting reservoir about three miles from Castries and after being thoroughly

filtered is carried in iron pipes to a service reservoir, whence it is piped to all parts of the town, all service pipes being of iron. As stated in Chapter XIV of this report nearly three million gallons of this water are sold annually to ships that come to Castries for water and coal. Frequent analysis shows that it is very good and pure.

Of this town of Castries, whose health regulations Sir Rubert Boyce considered most admirable, a beautifully illustrated guide book on the West Indies which is purchased by the majority of travellers says: "The best residences are to be found on Morne Fortuné and the encircling hills, for the lowlands are unsafe for white people to live in. In fact they cannot live there at all at night, and after dark the town is as lonesome as a cemetery—to which in truth it has often been likened."

It is true that the finest residences are on the hills which surround the town, partly because the climate is always cooler at high elevations than at sea level and partly because the views from Morne Fortuné are magnificent, but the statement that the clean and sanitary seaport of Castries is so unhealthy that white people cannot live there has not the slightest foundation in fact.

Flying visitors to the West Indies often form hasty conclusions about other matters as inaccurate as that guidebook's statement about Castries.

The death rate for the whole colony of St. Lucia was 17.4 per 1,000 last year. Dr. King, the medical health officer of St. Lucia said to me: "There has been no yellow fever in St. Lucia since 1001; no cholera for about 64 years; the last case of indigenous smallpox was so far back that there is no record of it; the plague has never occurred in St. Lucia, while diphtheria and dengue are unknown."

A campaign is now being waged in all these colonies against ankylostomiasis or hookworm, a disease which never seems to have affected the upper classes, but which is very common among the labouring classes in the West Indies as well as in the Southern States and is especially prevalent in India. It has recently been discovered that this disease can be very easily cured.

The evenness of the climate of the British West Indies and the fact that the intensity of the heat is greatly tempered by the cool trade winds conduce to health in many ways, but it seems to be a well established fact that white people living there need occasionally to visit the north—the tonic effect of northern air preventing enervation. But just as the white people of the West Indies are benefitted by a trip to northern latitudes, so it is often very beneficial to the health of northerners to spend a winter or part of a winter in the West Indies, and Sir Rubert Boyce was of the opinion that the British West Indies would become the winter health resort of Europe.

White men who have lived continuously in the West Indies for a long time say that shorter hours of work are necessary there than in Canada or England.

Canadians in general are under the impression that the first great campaign against yellow fever mosquitoes was in Havana during the American administration, but in the British West Indies it is claimed that those colonies led the world in inaugurating a campaign against mosquitoes and that Hon. Joseph Chamberlain, as head of the Colonial Office, was responsible for it.

Chapter XXVI.

PREFERENCE WITHOUT SACRIFICE.

While considering whether the sale of Canadian manufactured goods in the British West Indies may be increased let us ask the question to what extent can Canada's purchases of British West Indian products be increased.

Reciprocal trade between Canada and the British West Indies is preference without sacrifice because owing to difference of climate their products are entirely different from ours. What we buy from them we cannot buy at home. Canada must buy from somewhere great quantities of tropical products, including food, raw materials of medicines and raw materials of manufacture. The British West Indies must buy from somewhere large quantities of northern food products and manufactured goods. Reciprocity between countries which can thus be the complement of each other is a very different thing from reciprocity between two countries that produce exactly the same things and compete with each other in the markets of the world.

BETTER TO BUY DIRECT.

And this is a matter in which it is well to let the left hand know what the right hand is doing. At present we are buying a great deal from the British West Indies that they know nothing about. It would be well to do business in such a way that the British West Indian colonies would know Canadians are buying their products. For instance, Canada has for a number of years imported great quantities of bananas grown in Jamaica, but the Jamaicans do not know it. They think they have been selling nearly all their bananas in the United States, because Canadian importers instead of buying bananas in Jamaica buy Jamaica bananas in the United States. During the fiscal year ended March 31, 1914, Canada imported 2,624,887 bunches of bananas from the United States and 10,219 from the British West Indies. The bananas imported from the United States were valued at \$2,657,015. If they had been imported directly from Jamaica Canada would have had a much better standing in Jamaica's statistics of exports.

During the last fiscal year Canada imported 4,272,285 pine apples, but only 680 came direct from the British West Indies while 4,259,935 were imported from the United States. Our imports of oranges and grape fruit were valued at \$3,360,329 of which \$78,074 represented imports from the British West Indies and \$2,976,482 imports from the United States. We imported lemons and limes to the value of \$977,757 of which \$5,931 was the value of imports coming direct from the British West Indies.

TEA FROM JAMAICA.

The tea plantation at Claremont, Jamaica, is the only one in the West Indies, but in view of the great success achieved there thousands of acres in the highlands of which \$78,074 represented imports from the British West Indies and \$2,976,482 Jamaica are likely to be planted with tea. However it will be some years before Canada can get large supplies of tea from Jamaica.

ST. VINCENT ARROWROOT.

The secretary of the St. Vincent Arrowroot Growers' Association, said to me: "Why do not Canadian importers of arrowroot buy direct from St. Vincent instead of buying in England and the United States. Those countries do not grow arrowroot. Indeed the quantities of real arrowroot grown anywhere in the world outside of St. Vincent are very small. We practically supply the world with arrowroot and St.

Vincent has been the chief producer of arrowroot for over one hundred years. Our soil is especially well adapted to the growth of arrowroot and our abundant supply of pure water is another important factor in enabling our planters to maintain the reputation of St. Vincent arrowroot for purity and excellence as a great deal depends upon the washing processes. I have no doubt that all the real arrowroot Canada buys is grown in St. Vincent but our planters judge by the quantities which we sell direct to Canada. We have direct steamship connection with Canada now and there seems to be no good reason why Canadian importers should get their supplies of arrowroot in a roundabout way. Canada is nearer to St. Vincent than England is. The steamship freight from St. Vincent to England and then from England to Canada is greater than from St. Vincent to Canada direct and those who handle it in England must make their profit. Would it not be cheaper for Canada to buy direct? We think that Canadians should consume more arrowroot. There are two ways in which it might be used extensively—in the manufacture of biscuits as a mixture with flour and in the manufacture of cocoa and chocolate as a mixture with cacao. It makes both biscuits and chocolate more palatable and more digestible and helps to preserve them. One of the great cocoa and chocolate manufacturing concerns of England, famous throughout the world for its superior products, long ago discovered the value of arrowroot for mixing with cacao in making cocoa and chocolates. When you consider the purity of St. Vincent arrowroot and its extraordinary keeping properties this is not surprising. Our department of agriculture has been experimenting with insects in arrowroot and it has been discovered that it is absolutely immune from the insects that attack flour and other food products. There are a number of starches obtained from various plants that are incorrectly sold under the name of 'arrowroot.' Real arrowroot comes only from the tubers of the plant *maranta arundinacea*. Some of the imitations sold under the name of arrowroot are cheaper than the real arrowroot, but the great English cocoa and chocolate manufacturers I have referred to will have nothing to do with the cheap substitutes. They buy direct in St. Vincent and get the real article. They buy enormous quantities of arrowroot from us and are our best customers. It is because St. Vincent arrowroot is so absolutely pure and is so light and easily digestible that doctors recommend it for invalids and infants."

Afterward I was shown in the laboratory of the curator of the St. Vincent botanic garden a number of bottles, some of them filled with flour, others with arrowroot. Into these bottles weevils and other insects had been put several months before. In the flour they had multiplied; the flour was full of them. But in the arrowroot instead of multiplying they had died.

During the fiscal year ended March 31, 1914, Canada imported 103,033 pounds of arrowroot. Of this 59,934 pounds came direct from the British West Indies, 32,476 pounds from the United Kingdom, 7,190 pounds from the United States, 2,689 pounds from Hong Kong, 625 pounds from China and 110 pounds from Bermuda.

THE SUPPLY OF COCONUTS.

In Trinidad I was told that American buyers bought coconuts before they were picked, making contracts for a year ahead. I was asked why Canadian buyers did not adopt the same practice. Coconuts like limes grow all the year. The coconut tree is always producing nuts. Trinidad produces annually about 30,000,000 coconuts and nearly 20,000,000 nuts are usually available for export, the others being consumed in the colony. Canada's total imports of coconuts in an ordinary year would not greatly exceed 4,000,000 nuts, while small quantities of copra are imported. But imports of desiccated coconuts amount to over a million pounds coming chiefly from the East Indies. Perhaps Trinidad could supply desiccated coconuts or perhaps they could be desiccated in Canada in which case our imports of nuts would be greater.

RAW CACAO IMPORTS.

Trinidad and Grenada exporters of cacao asked why Canada bought so little cacao direct from the British West Indies. Canadian imports of preparations or manufactures of cocoa are far greater in quantity and value than our imports of cacao beans and it may be expected that as home manufactures take the place of imported preparations of cocoa and chocolate that our imports of cacao beans from the British West Indies will increase. Trinidad and Tobago produce about seven times as much raw cacao as would satisfy Canada's requirements; Grenada, where cacao is the chief product, exports nearly twice as much as Canada imports while St. Lucia and Dominica produce nearly half as much raw cacao as Canada imports and are increasing their output.

COFFEE IMPORTATIONS.

During the fiscal year ended March 31, 1914, Canada imported 15,691,964 pounds of green or unmanufactured coffee, but only 399,390 pounds came from the British West Indies, including British Guiana and British Honduras, although Jamaica alone averaged 7,766,800 pounds of coffee for export annually during the last four years. That is Jamaica annually produces about half enough coffee to satisfy Canada's requirements. Jamaica could easily double its output of coffee in a few years by planting more trees. British Guiana could produce almost unlimited quantities of coffee if assured that there would be a good market for it in Canada when the trees were grown. The coffee output could also be greatly increased in Dominica, St. Lucia and Trinidad.

SHOULD CANADIAN REFINERS GROW SUGAR CANE.

In several of the colonies I was asked the question, "Would it not pay your Canadian sugar refiners to acquire sugar estates and sugar factories in the British West Indies? Would it not be an advantage to get their raw material at cost price and be always sure of it in spite of market fluctuations?"

When the war broke out I was in Jamaica and a Kingston business man said to me: "Canadian sugar refiners will probably pay dear for their raw sugar now. If they owned sugar estates and factories in the British West Indies they would be more independent."

At the present time the British West Indies do not produce much more than half the quantity of raw sugar that Canada imports.

It is not probable that Trinidad, Barbados, the Windward and Leeward islands will greatly increase their sugar production. Trinidad planters are more inclined towards cacao and coconuts, but if a Canadian sugar refinery wanted land for sugar cane it would not be difficult to get a considerable acreage suitable for the purpose. Besides the land in private hands that might be acquired there are still thousands of acres of Crown lands. The sugar output in Barbados might be somewhat increased if the central factory system should be adopted as Barbados is naturally well adapted for such a system, but this would mean throwing into the scrap heap most of the factories now operating and there is no likelihood of such a plan being carried out although often talked of. On the other hand it is probable that the demand for Barbados "fancy molasses" will increase which will mean a decrease in sugar production as in making "fancy molasses" all the saccharine contents of the sugar cane go into the molasses instead of being used for making sugar.

If St. Kitts and Antigua had each another central sugar factory some areas of land not now utilized would be devoted to sugar cane, but the output could not be greatly increased. Montserrat and St. Vincent have found cotton so much more profitable than sugar that they are not likely to go back to sugar cane. Dominica is devoted to limes, cacao and coffee and will never again export much sugar. St. Lucia, while generally moving in the same direction as Dominica in this regard, has more land suitable for sugar cane and may increase its output a little.

In Jamaica there are wide areas of land not now cultivated which would be particularly suited to cane sugar if provided with a good system of irrigation, which experts say could be done at small cost. British Guiana has plenty of land suitable for sugar cane to produce all the raw sugar Canada will require for generations if it were placed under cultivation, and there would be millions of acres of good land left for rubber, coconuts, cotton, tobacco and other products.

SHOULD CANADIAN RUBBER MANUFACTURERS GROW RUBBER TREES?

In British Guiana I was asked if Canadian rubber manufacturers could not be induced to establish great rubber estates in that colony. It was pointed out that the conditions of soil, climate and rainfall in British Guiana are ideal for rubber growing, that the Para rubber trees both on the experimental plantations of the department of agriculture and on the various estates have made records of growth at least equal to those in Ceylon and the Malaya states from which the world gets its chief supplies of plantation rubber and that the few trees old enough to tap are making remarkable records as rubber producers. The experts of the British Guiana Department of Agriculture say there are immense areas of Crown lands suitable for rubber growing and these lands can be secured on very favourable terms for this purpose as the government of British Guiana is most anxious to encourage the development of the rubber industry.

It was argued that if a Canadian rubber manufacturing company decided that it would be good policy to have their own rubber trees to produce raw material no where else in the world could they have great plantations so conveniently reached from Canada as in British Guiana. To reach the rubber plantations in Ceylon, the Malaya states and India would require many weeks of travel, whereas the voyage from Canada to British Guiana requires only 16 days. "Moreover," said an advocate of Canadian investment in British Guiana Crown lands for rubber growing, "we hope as business develops between Canada and British Guiana that we may get a much faster steamship service than we have at present."

TERMS ON WHICH LAND MAY BE ACQUIRED.

In British Guiana leases may be obtained for areas of any size for the purpose of cultivating rubber thereon for a term of ninety-nine years. No rent is payable during the first ten years, an annual rental of twenty cents an acre is charged from the eleventh to the fifteenth years, and an annual rental of fifty cents an acre during the remainder of the lease. The lessee is required to plant one twenty-fifth part of the land with rubber trees with an average of not less than sixty trees to the acre each year and is required to pay a royalty of 1d. per pound on all rubber and balata collected during the first ten years. After the expiration of ten years, provided the conditions of the lease have been complied with, the lessee has the right to purchase the land leased at \$4 per acre. On application for a lease, the following fees are payable to the Government. Application, stamp and registration fees of \$21.20, survey fees of 30 cents per acre for the first 500 acres, 20 cents per acre for the next 500 acres and 10 cents per acre for each acre above 1,000 acres. That is the fees payable in the first place on account of 1,000 acres would be about \$271 and on account of 2,000 acres, \$371, while the purchase price at the end of ten years would be \$4,000 for 1,000 acres or \$8,000 for 2,000 acres.

Sir Walter Egerton, the Governor of British Guiana, told me that in his opinion a large rubber estate could be more economically managed than a small one. He said he would recommend not less than 1,000 acres.

Of course the price of the land would be a small part of the capital outlay as clearing the land of forest, planting rubber trees and looking after the plantation until the trees become old enough to yield rubber would require quite a heavy expenditure. In the case of flat lands liable to be flooded there is an additional expense for empoldering. But when the rubber trees begin to yield well good profits may be realized on the capital invested unless there is a great decline in the price of rubber.

COTTON AND TOBACCO.

Mr. H. P. C. Melville, government commissioner of the Rupununi Savannah, is of the opinion that when the interior of British Guiana is opened up by railways it will be found that there are very extensive areas suitable for growing cotton and tobacco. In the early days of British Guiana large quantities of cotton were grown, but later on cotton gave place to sugar. Jamaica also has extensive areas unutilized that would be suitable for cotton and tobacco.

RICE IMPORTATIONS.

During the fiscal year ended March 31, 1914, Canada imported 61,960,190 pounds of rice of which only 6,470 pounds came from the British West Indies, but British Guiana is increasing its rice production so rapidly that it will probably soon be in a position to supply all Canada's requirements.

BEAUTIFUL HARDWOODS.

Beautiful hardwoods for furniture making might be obtained in the forests of British Guiana, Trinidad, Dominica and St. Lucia. No systematic lumbering operations are carried on except in British Guiana and even there no effort is made to export furniture woods. In Trinidad, Dominica and St. Lucia settlers in clearing their lands of forests sometimes save the better class of timber and cart it into the seaport towns, so that there are small quantities available for export if there were buyers.

FOREST NUTS, ETC.

In the forests of these colonies there are great quantities of nuts, tonca beans and various medicinal plants that might be profitably utilized if anyone would undertake to systematically gather them.

SPICES, NUTMEGS AND GINGER.

Grenada is the colony that most prides itself on the title "Isle of Spices" but a number of the other British West Indian islands are well suited for spice growing. Canada imported during the last fiscal year 4,110,943 pounds of spices, nutmegs and ginger, of which only 527,291 came to Canada from the British West Indies, but 1,117,775 pounds came from the United Kingdom, and 724,485 pounds from the United States. As neither of these countries grows spices, a part of these imports may have come from the British West Indies in a roundabout way. Why should we not import our spices direct from the British West Indies? There is no doubt whatever that they could grow all the spices Canada requires.

Chapter XXVI.

PARCELS POST.

There is a parcels post convention between the United Kingdom and the various British West Indian colonies by which the Post Office Department of each colony collects on delivery the value of the articles sent, charging a small commission for collection. Under this agreement the c.o.d. parcel delivery business in those colonies is rapidly increasing. The United Kingdom is the only country with which these colonies have such a convention.

The Postmaster General of Trinidad said to me at the end of February, 1914: "For the fiscal year ended March 31, 1913, the total number of c.o.d. parcels received from the United Kingdom was only 1,961, with a value of £2,484 19s., but during the nine months from the 1st of April to the 31st of December 10,447 c.o.d. parcels from the United Kingdom were received in Trinidad and the amount collected by the Trinidad Post Office Department was £8,708 18s. 1½d. I have been astonished at the number of c.o.d. parcels delivered at some of the small post offices in Trinidad. One shoe company in Bristol, England, sent out a canvasser who took orders from the people in the small villages and on the estates. He got a great number of orders and they were sent by parcel post. We seldom had any difficulty in collecting payment on delivery, but in a few cases we did. Afterward the shoe company made an arrangement by which anyone giving an order should pay enough in advance to cover return postage so that if there was any failure to pay on delivery we could send the shoes back. The amount to be collected by the Post Office Department on delivery of parcels is called the 'trade charge.' The maximum trade charge on one parcel must in no case exceed £20, but more than one parcel of that value may be sent to one person by the same mail. Trinidad has the right to send parcels c.o.d. to the United Kingdom on the same terms as British articles come to Trinidad, but very few parcels have been sent c.o.d. from Trinidad. We have no manufactured articles to send and our natural products cannot be sent that way. I suppose that if we had a similar convention with Canada it would work out in precisely the same way. That is Canada would send a great many parcels to Trinidad and we would send very few parcels to Canada. However our Post Office Department would derive some profit from the commission charged for collections."

The delivery and collection fees charged in Trinidad on such parcels when received from the United Kingdom are as follows:—

Trade Charge.	Collection Charge.
£ 5 or less	4d.
£10 "	6d.
£15 "	9d.
£20 "	1s.

Anything exceeding £5 is charged at the £10 rate; anything exceeding £10 at the £15 rate and anything exceeding £15 at the £20 rate.

The British Post Office makes the following charges on parcels for Trinidad according to the size of parcels:—

Parcels weighing 3 Lbs.	1s.
" 7 "	2s.
" 11 "	3s.

The limit of size is 3½ feet in length, breadth or depth, but the length and girth combined must not exceed 6 feet.

The following articles are prohibited: letters, rum, all other spirits except *bona fide* samples and perfumed or medicinal spirits; rough-on-rats, opium and the under-mentioned products derived from the hemp plant, viz., ganja, bhang and cannabis indica.

The insurance fee for parcels not exceeding £12 in value is 4d.; for parcels exceeding £12 in value, but not exceeding the parcel limit of £20 the insurance fee is 6d.

The parcels post arrangement between the United Kingdom and the other British West Indian colonies is precisely the same in every respect as the convention with Trinidad. In each colony the Postmaster General told me the system was working very successfully.

In one of the Windward islands the postmaster showed me the list of all parcels coming c.o.d. from the United Kingdom during the previous year with the record of contents. The list was a very long one. From the contents it was evident that almost every class of articles coming within the limits of size and weight which the convention allows are ordered sent by parcels post. Among the many articles on the list were underclothing, vests, ladies' hats and various articles of women's clothing, confectionery, cakes, bacon, hams, tinned meats, sardines, shortbread, tableware, glassware, cameras, cotton and linen piece goods, toys, baskets, watches, rings and a great variety of other things.